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PAPER TRADE JOURNAL

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Vol. LXXXIV, No. 7 FEBRUARY 17, 1927 Per annum, $4.00 Per copy, 10 cents

6 Features of the Removable [BELOIT PAT.] FOURDRINIER

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[2] Labor Saved
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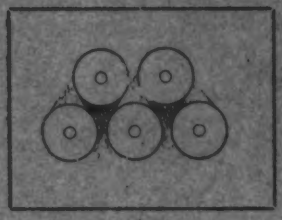
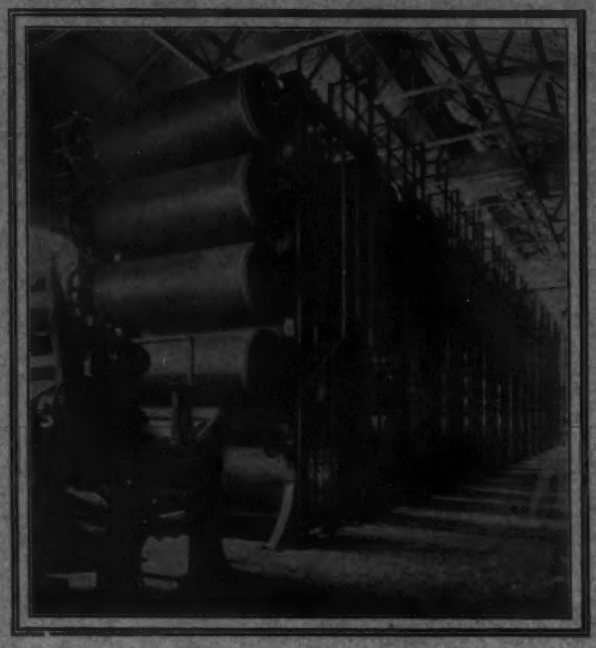
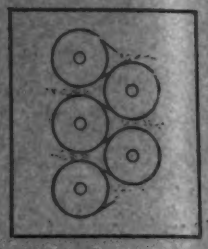


Moisture is trapped in this dryer, delaying drying, increasing costs, and lowering quality.





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Better Drying in Fact as well as Theory

ONE of the claims for the Vertical System of Drying is that the elimination of vapor pockets speeds up drying, giving a better, more uniformly dried sheet.

A recent test made in the Franklin Board and Paper Mill, Franklin, Ohio substantiates this claim.

It was found that after the third press the sheet was 6.28% dryer in the middle than on the edges; after 18 dryers 8.98% dryer; after 58 dryers 15.76% dryer; and after 98 dryers, when the sheet was practically dry the center was still 7.43% dryer than either the front or back.

This is all the more striking when it is considered that similar tests made on a triple deck machine showed that ordinarily the center of the sheet was from 12 to 15 per cent more moist than the edges.

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When the machine was changed over to the Vertical System these crowns were not removed. There were no vapor pockets to retard drying and the center of the sheet became more dry than the edges. It made it necessary for the mill to remove the crown from its rubber rolls to correspond to this new and better condition.

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BLACK-CLAWSON

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Built with Machine-Tool Accuracy

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PAPER TRADE
ESTABLISHED 1872
JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-FIFTH YEAR

Published Every Thursday by the

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ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

PAPER

Vol. LXXXIV, No. 7 — Thursday, February 17, 1927

The Magazine of the Paper Industry

Paper Production Decreases During December

Shows a Decline of 8 Per Cent As Compared With the Preceding Month According to Reports By Identical Mills to the American Paper and Pulp Association and Cooperating Organizations—During the Same Period Wood Pulp Production Decreased 6 Per Cent Distributed Over All Grades With Two Exceptions

The December production of paper in the United States as reported by identical mills to the American Paper and Pulp Association and cooperating organizations, showed a decrease of 8 per cent as compared with November's production following a 3 per cent decrease in November over October, according to the Association's Monthly Statistical Summary of Pulp and Paper Industry. All grades showed a decrease in production as compared with November, with one exception.

The Summary is prepared by the American Paper and Pulp Association as the central organization of the paper industry, in cooperation with the Binders Board Manufacturers Association, Converting Paper Mills Association, Cover Paper Association, Newsprint Service Bureau, Wrapping Paper Manufacturers Service Bureau, Writing Paper Manufacturers Association and Paperboard Industries Association.

The figures for December for same mills as reported in November are:

Grade	Number of Mills	Production Net Tons	Shipments Net Tons	Stocks on Hand End of Month, Net Tons
News print	71	135,069	136,501	12,030
Book	62	95,998	95,430	43,835
Paperboard	108	140,851	144,487	49,231
Wrapping	77	50,167	50,412	37,827
Bag	23	10,815	12,133	7,795
Fine	87	29,770	29,616	42,521
Tissue	48	14,389	14,260	15,097
Hanging	7	5,854	6,737	1,069
Felts	14	8,764	8,458	2,198
Other Grades	62	22,569	21,874	16,672
Total—All Grades		514,246	519,908	228,275

During the same period, domestic wood pulp production decreased 6 per cent, this decrease being distributed over all grades, with two exceptions. The December totals (mills identical with those reporting in November) as reported by the American Paper and Pulp Association, are as follows:

Grade	Number of Mills	Production Net Tons	Used Net Tons	Shipments Net Tons	Stocks on Hand End of Month, Net Tons
Ground Wood Pulp	99	95,737	92,237	4,070	127,352
Sulphite News Grade	38	40,796	37,857	3,664	10,270
Sulphite Bleached	22	23,828	20,593	3,428	3,433
Sulphite Easy Bleaching	7	4,697	3,678	1,112	918
Sulphite Mitscherlich	6	6,667	5,195	1,272	796
Sulphate Pulp	10	16,736	15,256	925	2,226
Soda Pulp	11	16,864	13,276	3,943	3,179
Other than Wood Pulp	2	.....	.....	....	12
Total—All Grades		205,325	188,092	18,414	148,186

Maxwell Paper Co. Starts Plant

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, February 14, 1927.—The opening of the Maxwell Paper Company's mills at Franklin, 17 miles south of this city, last week was the occasion of great rejoicing on the part of the populace. The leading business men of the mill town were present to witness the running of the first sheet of paper and congratulations were showered upon the owners, Maxwell Howard of this city and his associates.

Large baskets of flowers and other numerous floral tributes were sent to the company from Dayton, Franklin and other cities, as a welcome to the new enterprise.

Mr. Howard and associates demonstrated their confidence in the business sufficiently to invest more than $2,000,000 in the industry, including the purchase price of the old Harding writing paper mill from the American Writing Paper Company, and its valuable water rights.

While the interior of the old mill was ripped out and new and modern equipment placed in the remodeled plant, and new buildings were added, yet the old exterior of the mill known as Harding's famous plant, the first of its kind in the West, still remains and is recognizable.

The water facilities were improved to the utmost and a new paper machine was installed for the manufacture of Maxwell bond papers.

Maxwell Howard, at the head of the Aetna mills in Dayton and the Howard Paper Company in Urbana, also is president of the Franklin concern; Ward R. Howard is vice-president; H. H. Hoffman, secretary, and Howell H. Howard is treasurer. The latter divides his time between Dayton and Franklin and is a son of Maxwell Howard, whose home also is in Dayton.

Bryant Paper Co. Has Prosperous Year

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., February 14, 1927.—The year 1926 was a highly successful one for the Bryant Paper Company. That fact was disclosed at the annual meeting of the stockholders.

There was a cut of over $3 a ton in the price of paper to face, with relatively little reduction in raw materials, and in addition the company expended over $800,000 for improvements and expansion of capacity. Yet the total net earnings approximated those of 1925 and regular monthly dividends of one per cent and an extra maintained.

The entire board of directors was re-elected as follows: Felix Pagenstecher, W. B. Milham, C. A. Fox, G. S. Allen, E. M. Irish, Charles Clarage, V. T. Barker, Joseph E. Brown, all of Kalamazoo; E. L. Brooks, Wyoming, Ohio, and H. E. Floercky, Los Angeles. Felix Pagenstecher continues as president, W. B. Milham as vice president and C. A. Fox as secretary-treasurer.

Paper Market is Fairly Steady in Philadelphia

Production Being Absorbed Satisfactorily, With Stocks on Hand at a Minimum—Present Activity Principally Confined to Coarse Paper Industry—Big Request for Output of Wrappings and Krafts—Prices Generally Continue Firm

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., February 14, 1927.—While the paper trade has been less active than had been anticipated with the advent of the current month, there are many indications that the market is in a fairly steady position, with no apparent disturbing influences to prevent a continued demand within a brief period. The general outlook is optimistic and the continued steady prices lead the dealers to believe that the consumption of paper is on a par with production. The holding prices seem to indicate that the market is absorbing all paper produced and stocks on hand in the mills are kept at a minimum, with no accumulations that might cause a recession later on. The distributors in the Quaker City look upon these factors of steady prices at this season as indicating a firm foundation upon which the coming spring business may be built with confidence. These bright business indicators are particularly applicable to the coarse paper market, where present activity is chiefly confined.

Over-Issue News for China Falls Off

Owing to the disturbing conditions that now prevail in the Chinese Republic there is a decided falling off of exportation of over-issue news, which is much used for wrapping purposes by the natives as a substitute for the higher priced grades of wrappings commonly employed by our own industries. The prices on old news have been depressed as a result of the lessened demand from our oriental consumers.

Market For Coarse Papers Strong

Coarse paper dealers are optimistic of the future for this branch of the trade and base their reasons for this attitude upon the continued firm price and the absence of mill offerings. There is demand for all production that is now turned out by manufacturers of wrappings and krafts. Present orders are of a fairly well maintained seasonal type, and inquiries for further requirements are numerous.

Butchers Fibres and Sulphites Unchanged

When Representative Scott of the Bayless Manufacturing Corporation called on the trade last week he assured the distributors handling butchers fibers and sulphite wrapping papers that there is no indication of a changed market for these products. That he has reason to assure the dealers of continued strong market conditions for these specialties is verified by the announcement that the mills he represents have disposed of all accumulations on hand, and all present production will be consumed in the orders already listed for the early 1927 stocking requirements of the distributors. The mills at Austin, Pa., are now on full time operation.

Hemingway Warehouse Destroyed by Fire

Fire which last Thursday started in the paper stock warehouses of the Hemingway Company, 828 N. Hancock street, resulted in the destruction of the entire building owned by the firm and the paper stock stored on its four floors. The loss extended into several thousand dollars. This is the second time within the past two years that the firm has suffered losses through fire. Shortly after the business of Edward Hemingway was purchased by the present owner, Harry T. Bailey, the old home in Elbow Lane was totally destroyed by fire. The present home was purchased about two years ago and after being modernized with all newest mechanical equipment for handling the stock was occupied by the new organization. The Hemingway Company was one of the oldest and best known of the pioneer paper stock wholesale houses in the Quaker City and its former proprietor, Edward Hemingway, noted as a globe trotter, who retired upon the transfer of the business to the new owner in order to give complete time to the travels which took him to all points of the compass. Temporary quarters have been taken at 150 N. Front street.

Paper Stock Market Listless

Paper stock dealers have been lingering along in a listless market with demand from the mills now centered in a few of the commoner grades. While prices have not been changed they have been reduced to such low levels that further reductions would mean a material loss to the wholesale mill supply men. There is considerable accumulation of the cheaper grades, with the mills making their bidding low for quantity purchases of paper stocks. In fact the mills dominate the market, and are securing their raw materials at the lowest levels since the post war period. The lower prices for paper stock should later be reflected in the prices of those grades of paper such as boards, news and chip, into which enter the commoner grades of pulp foundation.

Trade Prepares for Banquets

While the local trade marks time for the arrival of the spring activities, there is thought and attention given to the coming annual banquets which this year will be held later than usual for both the paper dealers and their allies in the graphic arts and the wholesale stock men. The early days of March have been selected for the 1927 annual social sessions of the distributors and the wholesale merchants.

Paper Stock Merchants Complete Plans

Under the direction of the entertainment committee, of which Harry Bailey is chairman, and Secretary William J. McGarity and John A. Murphy, co-workers, the Philadelphia Wholesale Waste Merchants will hold their annual gathering at the Penn Athletic Club on March 8. A diversified program has been provided with a wide range of vaudeville talent and novel dinner features to be included for the entertainment of visiting associates in the paper manufacturing branch of the industry, as well as the local dealers in the wholesale stock division.

Graphic Arts Night

While the annual gathering of the paper men and their allies in the printing trades will bring together associates of all branches of the graphic arts in the closer communion of social contact on March 3, at the Penn Athletic Club, there will be a novel feature in the Gypsy Party which will accompany the event. This year the attendants at the Graphic Arts Night celebration will be costumed and after the dinner service will enjoy a dancing program and entertainment and a diversified program of sporting events which the Club affords in very modern surroundings and provisions. The Typothetae and the Paper Trade Association will unite in the annual gathering, with William T. Innes representing the master printers, while W. W. Wilcox and George W. Ward will look after the paper trade affiliations on the committee of arrangements.

Insurance Adjustment Case Settled

The final settlement of the long disputed insurance adjustment of the Garrett-Buchanan Company fire, which resulted in damages to the extent of more than a quarter million dollars, was made

during the week, when the case came up for trial in the Court of Common Pleas. The disputed claims were those made by Sylvester S. Garrett against the General Adjustment Bureau of New York City for services rendered to that organization as appraiser of the list of merchandise owned or held in trust by the Garrett-Buchanan Company at the time of the fire in April, 1923, at 18-20 S. 6th street. In the late April days of that year the General Adjustment Bureau handed to Mr. Garrett a schedule of merchandise for which insurance was sought by the paper house as result of the loss by fire and on May 28, a month later, the appraisal was completed and a sum of $2,500 asked for services by the appraiser. As a result of the appraisal the General Adjustment Bureau settled the loss for $100,000 less than the paper houses claimed for damages to its property and stocks, and appraised by the fire adjusters, Messrs. Clarke and Cohen.

G. F. Krumdick represented the General Adjustment Bureau in submitting the schedule of losses to Mr. Garrett, and offered the latter $500 for the work of appraising the merchandise. This offer was not accepted, and the law suit followed for the collection of the full amount of the $2,500 which Mr. Garrett claimed for his services. When the case came up for trial on Monday of last week a settlement was made before Judge McMichael by a verdict in favor of the plaintiff after agreement by counsel for the sum of $1,250. This verdict precludes any possible appeal and gives credit for the accuracy of the appraisements made by the plaintiff while connected with the Garrett-Buchanan Company. Sylvester S. Garrett, who is involved in the proceedings, was at one time a member of the firm of the Garrett-Buchanan Company, having been associated with that concern with his father, one of the founders of the company. He is now engaged in his own paper business on 3rd street, below Walnut, and is recognized as an authority on the paper industry, after more than a quarter century association with it. He is also a member of the pioneer paper making Garrett family, which for many years has been identified with the manufacturing branch of the trade in Pennsylvania.

Paper Trade Meeting Postponed

The customary Thursday meeting of the wrapipng paper division of the Philadelphia Paper Trade Association was postponed until this week and may be definitely scheduled to take place every three weeks, instead of the present semi-monthly sessions. The present plans of a three week interval between the sessions is for the purpose of accommodating the members who have not been able to attend the semi-monthly gatherings as frequently as possible under the new schedule. The Fine Paper Division will meet as usual on Wednesday of this week, with President David Lindsay, Jr., of the Philadelphia Paper Trade Association as Chairman.

Simon Walter Sails for West Indies

Simon Walter, head of the paper house bearing his name, 144 N. 5th street, was among the notables who sailed on the *Lafayette* from this port last Friday, the first ship to leave these ports for the West Indies in a period of 30 years. Those who attended the Stanley Theatre, the most prominent of moving picture houses in this city, were treated to a news reel showing Mr. Walter among the notables who were included in the passengers with a single "close up" made of him as an outstanding feature. Mr. Walter is head of the Transportation Committee of City Councils, and has long been a leader in the political and civic life of the Quaker City. He will return the latter part of the month.

Dr. W. M. Bovard Buried Here

The remains of Dr. William M. Bovard, a native of this city, were brought here for burial last week. Dr. Bovard was well known as a wax paper expert, having for many years been associated with that branch of the industry. For several years he was connected with the Package Paper and Supply Corporation, of Springfield, Mass., and severed his relationship with that concern to go to Melbourne, Australia, to conduct a wax paper manufacturing business for an English company. He returned to this country two years ago and joined the Chemical Manufacturing Company, of Holyoke, Mass., his death occurring while still identified with that firm on February 7. He was 50 years of age. Funeral services were held at the home of his father in the Mandyunk district.

George W. Ward to Return From Abroad

President George W. Ward, head of the D. L. Ward Company, who has been making a tour of Europe and the Orient for the past two months, will return to his desk in time to participate in the coming Graphics Art Night celebration of which he is chairman of the paper committee. It is expected that he will arrive here by March 1.

Tablet Firms Effect Big Merger

DAYTON, Ohio, February 14, 1927.—The Miami Tablet Company of West Carrollton, seven miles south of Dayton, and a half-dozen similar concerns located in different parts of the country, under the name of the Western Tablet and Stationery Corporation, was announced today.

The deal involves a consideration of $15,000,000. It was effected largely through the efforts of W. W. Sunderland, Dayton, formerly of the Miami Tablet Company, and he will serve as president and treasurer. Mr. Sunderland arrived home Sunday from Chicago where he has been contemplating negotiations for the merger.

G. W. Heitz, of this city, also a former officer of the West Carrollton company, will be secretary of the new corporation. With Mr. Sunderland he will have his offices in the Third National Bank building, where the general headquarters and executive offices of the corporation will be maintained.

Besides the Miami Tablet Company, concerns in Holyoke, Mass., Kalamazoo, Mich., Richmond, Va., St. Joseph, Mo., Green Bay, Wis., and Minneapolis, Minn., are included in the new corporation. Each company will carry on its operation as before the merger.

The object of the combination is to obtain better distribution of the various concerns' products and to obtain greater buying power, it is stated. Mr. Heitz as an officer, expects to spend much of his time visiting the various companies.

The Miami Tablet Company has been in operation at West Carrollton for ten years. Previous to 1917, it was the staationery department of the Miami Paper Company.

Recently the Miami Paper Company passed into other hands and is now known as the Oxford Miami Paper Company. Mr. Sunderland has been president of the company for a number of years.

Now McGillan Mill Supply Co.

MENASHA, Wis., February 14, 1927.—Announcements have been received from T. E. McGillan manufacturer's representative, by all the paper mills in Wisconsin and Michigan that the Menasha office will be designated hereafter as the McGillan Mill Supply Company.

Some time ago after Mr. Mcgillan had disposed of his interests in the McGillan-Asmuth Paper Mills Inc., with which he had been associated successfully for the past twelve years as general manager he opened the Menasha office, the exclusive representative of the mill mechanical supplies of the McMaster-Carr Supply Company, Chicago and the International Burr Corporation of Watertown, N. Y., and, with the direct service tendered the paper mills from his office, met with very gratifying success.

With the progress made by Mr. McGillan who is well known to the trade it was deemed advisable to change the name to McGillan Mill Supply Company. The new company is located in the Bank of Menasha Bldg., Menasha, Wis., and in addition to the above lines, a high class line of domestic and foreign pulps is being added.

Demand for Paper in Toronto Continues Brisk

Distributors Report Business Transacted During January Exceeded Volume in Corresponding Period of Previous Year—Manufacturing Plants Reported to be Generally Active—Wrapping Paper Market Shows Improvement—Kraft Paper Firm

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., February 14, 1927.—Business in the paper trade continues good and, during the coming week, a number of wholesale concerns will hold their annual meetings. It is understood that reports will show not only an increased tonnage over the record of the previous year but also a gain in earnings in most cases. January was a good month and, with scarcely an exception, jobbers report that trade was better than in the corresponding month of 1926.

Things in the paper line now appear to be headed in the right direction, and it is expected that the volume will keep up. Manufacturing plants are busy and the wrapping paper turnover shows improvement. In the paper bag section, in which price cutting has been rampant for some time, there has been an increase of 10 per cent but, in cotton twines, there has been a drop of three cents per pound on No. 1, the manufacturers now quoting 25 cents per pound. Jute twines are firmer in price and a fair business is being done in this line. Manufacturing stationers are busy and report a good trade in every department.

In the paper box industry there has been some falling off during the present month following a very active January. Kraft paper keeps up well, selling at $7.20 for m.f., delivered in car lots, and $7.35 for m.g. in car lots. Kraft pulp is also in moderate demand at $65 a ton. Other features of the paper business remain unchanged.

Former Toronto Man Honored

A. Clarke Hunt, president of the Canadian Paper Trade Association, who was elected to that position at the recent annual meeting held in Montreal, is president of Provincial Paper Sales, Ltd., Winnipeg. He is an old Toronto boy, and many eastern friends are pleased at his promotion. He went west several years ago and was associated with the John Martin Paper Company, until that organization was taken over by Provincial Paper Sales. Mr. Hunt's father was for many years salesman for a well known type-founders firm in Toronto. The new president of the Canadian Paper Trade Association has long been a diligent worker in the ranks of the industry.

Historic Firm Holds Annual

The annual meeting of W. J. Gage & Co., manufacturing stationers and paper dealers, Toronto, was held during the past week when a satisfactory report on the operations of the year was presented. H. H. Love was re-elected president, H. F. E. Kent, vice president and general manager, and A. G. Parker, secretary-treasurer. The company has been in business 85 years, which constitutes a record for longevity in the paper line in Canada. H. F. E. Kent, general manager of the organization, has been connected with the firm uninterruptedly for thirty-two years and is a former president of the Canadian Pulp and Paper Association.

Abitibi Fibre Company Appointments

A meeting of the officers of the Abitibi Fibre Company, which recently acquired the plant and properties of the Mattagami Pulp and Paper Company at Smooth Rock Falls, Ont., was held in Toronto last week. It was rumored some time ago that the head office of the concern would be removed from Toronto to Montreal but it is now learned on good authority there will be no change of location.

S. R. Armstrong, who has been manager of the company for the receiver for a number of years, has been made vice president and operating manager of the Abitibi Fibre Company, and will continue to have his headquarters in Toronto, making frequent trips to the plant. E. R. Gosset, of Toronto, who has been identified with the Mattagami Pulp and Paper Company for several years, has been made assistant secretary. Fred C. Clarke, late treasurer of the Mattagami organization, has gone to Montreal, where he has taken an important position with the Royal Securities Corporation.

The Mattagami Pulp and Paper Company officially came to an end last week, when all parties interested appeared before C. Garrow, K.C., at Osgoode Hall, Toronto, and a sum representing $7,188,080 was handed over in bonds. The assets of the Mattagami Company was purchased some time ago by I. W. Killam of the Royal Securities Corporation, for $7,250,000, and a few days later he sold these to the Abitibi Fibre Company, Ltd., which is a subsidiary of the Abitibi Power and Paper Company. The output of the Mattagami Company is about 60,000 tons per annum of high grade sulphite pulp to which bleaching equipment of about 30,000 tons per annum was added during 1926, and a complete hydro-electric development with an installed capacity of 9,000 hp. which supplies power for current needs.

Will Standardize Aerial Machines

Intimation was given recently by the Hon. William Finlayson, Minister of Lands and Forests, that the Ontario Government is contemplating a scheme of standardizing the machines and equipment of the Provincial forest fire patrol, with a view, presumably, to increasing the efficiency of the unit and thereby lessening the annual fire wastage in Ontario's northland. While Mr. Finlayson has no definite statement as yet to make regarding the Government's plan, it is believed that the standardization he will attempt will mean the augmentation of the present service with fast and low-flying machines, rigged with every conceivable fire combative appliance and yet capable of carrying an adequate crew.

Mr. Backus Will Build Mill

E. W. Backus has sent a statement to the Manitoba Industrial Development Board to the effect that he will start the erection of a pulp and paper mill on the Red River, probably near Selkirk, by June 1 next, providing certain provisions are complied with. Mr. Backus asks as a condition precedent to building the mill, the furnishing by the Federal Government "of the necessary fundamentals, viz., pulp wood and power site." He offers to give satisfactory bonds for due performance.

Heavy Snow Handicaps Logging

Although pulp wood manufacturers have increased their capacity and production, particularly in the Port Arthur district, is heavy, it is a question whether exports of pulp wood to the United States this year will prove as heavy as had been anticipated, according to E. N. Whyte, of Curry & Whyte, Duluth, who was in Port Arthur recently. The very deep snow in the Port Arthur district, and labor difficulties, may combine to materially reduce the output of pulp wood there. The prospective demand for pulp wood this year is good, said Mr. Whyte. Heavy precipitation has provided plenty of water-power for the pulp mills.

Notes and Jottings of the Industry

H. A. Goldsbrough, of the sales staff of the Hodge-Sheriff Paper Company, Toronto, was in Montreal last week on business.

Gordon Blanchard, sales manager of the Crocker-McIlwain Company, manufacturers of fine writing papers, Holyoke, Mass., was in Toronto lately calling on the trade.

W. H. Thornhill, of Montreal, who represents several English paper houses, transacted business in Toronto during the past week.

P. H. Wheeler, representing the Franklin Paper Company, Holyoke, Mass., was a caller on the trade in Toronto during the past few days.

H. B. Donovan, sales manager of the Canada Paper Company, Toronto, who has been in the Toronto General Hospital for some weeks, where he underwent an operation successfully, has left that institution and is now recuperating at his home in Oakville, Ont.

David F. Robertson, general manager of the Canadian Paperboard Company, Montreal, spent a few days in Toronto recently on business.

Canada Waxed Papers, Ltd., 405 Logan avenue, Toronto, recently assigned. George S. Holmestead has been appointed liquidator.

L. R. Wilson, vice president and managing director of the Abitibi Power and Paper Company, Montreal, and W. H. Smith, secretary-treasurer of the company, were in Toronto last week. Mr. Wilson was recently re-elected president of the Canadian Pulp and Paper Association for a second term.

E. Pullan, the "Waste Paper King of Canada," Toronto, reports that business during the past year exceeded in tonnage the record of any previous year in the history of his firm, which also maintains a branch in Hamilton, Ont.

Fred W. Halls, of the Fred W. Halls Paper Company, Toronto, has been elected president of the City Club, of Toronto, which is a well known organization of business and professional men.

A deputation representing the Carpenter-Hixon Company, of Blind River, Ont., which will erect a large lumbering and wood working plant at Blind River this year, interviewed Premier Ferguson recently and discussed the details of the construction. The new company is carrying on active woods operations on the Mississauga timber limits which it acquired lately from J. J. McFadden, of Spragge, Ont.

The Hawk Lake Lumber Company, of Cochrane, Ont., of which A. E. Wickes is president, is taking out over one hundred thousand cords of pulp wood this season. Mr. Wicks began contracting for pulp wood eleven years ago.

The next annual convention of the Canadian Paper Box Manufacturers' Association will be held at the King Edward Hotel, Toronto, on June 20 and 21. The convention committee held a meeting last week in Toronto, and now has plans regarding the details of the gathering well under way.

Mrs. Kent, wife of H. F. E. Kent, of Toronto, former president of the Canadian Pulp and Paper Association, fell recently in her home and broke her hip, which will confine her to her bed for some time. Mr. Kent had just arrived in Montreal to attend the pulp and paper convention when he received word of the accident and had to turn round and return to Toronto.

TAPPI Convention Notes

During the convention of the Technical Association of the Pulp and Paper Industry in addition to valuable papers on various subjects, a number of important addresses will be presented.

G. L. Clark, Massachusetts Institute of Technology will address the Association on The Application of X-rays to the Pulp and Paper Industry.

W. H. Mason, Laurel, Miss., will describe his revolutionary process for defibering wood waste by the use of high pressure steam and the manufacture of insulating board and presdwood from the product.

Dr. Gerald Wendt, Penn State College, will discuss the continuous recording of acidity by the use of an instrument of his design.

Hosea Webster, of the Babcock and Wilcox Company will deliver an illustrated address on The Economics of High Pressure Steam for Industrial Plants.

Kinnard Mfg. Co. Assets Placed at $127,408

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, February 14, 1927.—In a report filed in Common Pleas Court by appraisers, the assets of the Kinnard Manufacturing Company, makers of paper boxes, cartons and oyster buckets, recently placed in receivership, are given as $127,408.

These assets consist of real estate valued at $12,000; machinery, $32,463; building and equipment, $71,000; raw materials and manufactured goods, $11,480; and office fixtures $464.

The Kinnard Company has been in existence here for nearly 40 years. Some time ago the stockholders met to consider what action to take following the filing of a suit for approximately $5,000, by the Beveridge Paper Company of Indianapolis, when it developed that the firm had been losing money for some time. It was decided to seek a receivership.

One of the principal men connected with the firm some time ago formed a new paper box company, located at a different section of the city, and procured the contract for making all of the Green & Green Cracker Company's cartons, a job which had been held by the Kinnard Company for many years.

The Kinnard Company was organized by the late William Kinnard but previously the business had been conducted by the Crume & Sefton Company and later by William E. Crume, a former police commissioner of Dayton.

Hinkle Named Head of Box Company

NEW HAVEN, Conn., February 5, 1927.—H. S. Hinkle, former first vice-president and general manager, has been elected president of the National Folding Box Company at the annual directors' meeting. Mr. Hinkle succeeds David S. Walton, of West Orange, N. J., who has been president of the company since it was incorporated over 35 years ago. The directors especially honored Mr. Walton by creating a special office for him as chairman of the board. Mr. Hinkle, the new president, although not a resident of New Haven for many years, deserves to be called one of its loyal citizens having given generously of time and service to many civic and industrial matters and is deeply interested in welfare and prosperity of the employees of the "Box Shop."

He is a director of the National Tradesmens Bank, vice president of the Paperboard Industrial Association, and a member of the New Haven County, Union League, and Quinnipiack Clubs locally, and several New York City clubs. Morris T. Lynch, a director and manager of the company's New York office, was elected a vice president. F. G. Sims, formerly cashier, was elected assistant treasurer. He has bought a home in Livingston street and will reside here permanently.

Forest in Memory of Fred G. Crane

[FROM OUR REGULAR CORRESPONDENT]

PITTSFIELD, Mass., February 15, 1927.—The town forest committee consisting of Charles H. Chamberlin, Z. Marshall Crane and Charles F. Sawyer have made their report on the memorial forest in memory of the paper manufacturer Fred G. Crane. They report that the town has received the deed of 100 acres from Fred G. Crane, Jr. Some 20 acres will be planted this year to spruce seedlings, funds received from Marshall Crane, Kelton B. Miller and Cortland F. Bishop allowing this to be done.

G. S. Davis New Secretary of Traffic Association

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., February 8, 1927.—George S. Davis, secretary of the Allied Paper Mills, has been elected secretary of the Michigan Paper Mills Traffic Association to succeed George Gerpheide. Other officers, all re-elected, are: Alex. G. Gilman, president; F. M. Hodge, vice president; C. S. Campbell, treasurer; James Dougherty, traffic manager. The affairs of the bureau are in excellent condition.

Chicago Paper Market Conditions Little Changed

Observers Mostly Optimistic Over Future Trend, Now That Prices are Established on More Normal Basis—Book and Bond Paper Quotations Recover, Following Slight Decline—Kraft and Ground Wood Papers Continue in Satisfactory Demand

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., February 11, 1927.—Business in all grades of paper has been good during the past week. Dealers are confident that, now established, the market will take on a very optimistic and roseate hue. Some low prices have been quoted in book and bond paper, but at this writing there seems to be somewhat of a strengthening of this market. Ground wood paper is steady and is experiencing a good demand. Kraft seems to be in the most secure position of all, and a hearty and growing demand seems to be keeping up in excellent shape, with an equally well established supply.

Last week's announcement of an exceptional price cut by a large eastern manufacturer has failed to produce any startling changes in the Chicago market. In fact, some dealers are paying no attention whatsoever to the entire proceedings, while others are still contemplating what action to take in one or two of the grades, notably in coated papers. Some organizations fail to see how such a low price can be carried on coated papers in view of the fact that prices on their present scale are making no money for the dealers.

One dealer reported that he was $7.000 off on a quotation of coated paper and found that if he had priced his product in line he would have been losing about $3.00 on the transaction. In view of the fact that it costs just as much to make coated raw stock as book paper, and since prices on coated paper are much lower than quotations on book paper, some dealers are not slow in affirming that continued playing with the coated market may be the means of breaking the book market.

Certain explanations of this condition point to the fact that some mills are reticent about shutting down when orders slow up a bit and are not content to wait and let orders pile up for a week or ten days. On the contrary they go ahead and make paper, preferring to sell it at cost, or at a loss, rather than not operate at all. This desire to be continually operating, even if at a disadvantage, is cited as one of the conditions for low and losing prices in certain grades of paper.

Some investigation, following the price lowering mentioned above, disclosed the fact that in some items the eastern manufacturer had shaved as much as 3 cents from one item, 2½ cents from another and 2 cents from still another. However, the remainder of the price changes were about 1 cent lower than local quotations.

New Line of Waterfall Offsets

The James White Paper Company, specializing in coated papers, has recently introduced a new line of Waterfall offsets, a paper made by the manufacturers of Waterfall Bond and Cover paper. The paper is unusual because of its exceptional whitness. The James White "Coated Paper Color Book" sent out to the trade about a month ago has proved the sensation in that line of catalog description. The use of color in advertising has grown steadily in popularity and the James White book seems to fill a need. It is the description of a plate showing a half tone (133 screen) of a photograph with good contrasts of high lights and deep tones, three series in 133, 120 and 85 screen showing five gradations of shade and a block tint, eight standard Ben Days and a section in 133 screen shading from a block tint to a high light. Each of the ten standard (unmixed) colors of ink has been run on each of the ten colors of stock. The inks are standard. The White illustrated, is the James White coated two sides Whitefriars Cover. The other nine colors are of the James White Rainbow Coated Book Paper—probably the largest line of Colored Coated Book Paper in the world: nine colors, two weights, three sizes with an additional size in India in both weights.

Chicago Jobbers to Attend Paper Convention

With the annual meeting of the National Paper Trade Association in New York just around the corner, many Chicago jobbers, dealers and mill representatives are laying their plans so that they can be counted as "among those present" when the association convenes February 24. One result of the approaching meeting is found in the lack of personal news as far as visitors to the Chicago markets are contributing. The first six weeks of 1927 have been almost barren as far as the visits of out of town paper men are concerned. It is expected that jobbers, dealers and all will be visiting in Chicago next week and the few days just preceding the convention while on their way to New York. It is too early yet to find out who has definitely decided to vacate the Windy City but by next week it may be possible to publish a fairly complete list of those that will go.

Leatherfold Paper Going Strong

Bradner, Smith & Co. are meeting with much success in the new "Leatherfold" paper that they placed on the market late in the fall. This line replaced the former line of folding enamel and has justified all that has been said of it. "Leatherfold" is an entirely different type of paper from the usual folding enamel. This becomes noticeable in the "feel" of the paper. It feels like a piece of leather, and is pliable, yet has a very high surface. It stands a great deal of wear and yet takes fine screen half-tones like a good grade of non-folding paper. Bradner, Smith & Co. have advertised this line extensively and have recently issued two booklets that should receive much credit for their artistic worth. One booklet describes "Leatherfold" and the other gives actual cases where it has been used satisfactorily. The same company has also been successful in introducing "Brightone" offsets. This article is satisfactory for offset work and letter press printing and takes care of half tone work up to 120 line screen. It is exceptional for its extremely bright color.

News of the Industry

R. C. Swan, formerly manager and sales manager of the Peshtigo Paper Company, is now associated with the International Paper Company, with the western sales branch under western sales manager R. B. Harbison, and is representing special grades of paper. Mr. Swan entered the employ of the above mentioned company February 7, and is now in New York familiarizing himself with various trade conditions.

It has been announced in Chicago circles that P. M. Allen, who has been sales manager of the Detroit Sulphate Company, is or will become receiver of the Peshtigo Paper Company, taking the place of John H. Bird of Milwaukee.

The appointment of R. H. Bull, formerly second vice-president of the Bradner-Smith Paper Company, as first vice-president and general manager of that company is now confirmed. Mr. Bull succeeds to the position formerly held by M. D. McAlpine, well known in paper circles, who died in December.

The seventh or office floor of the Bradner-Smith building is coming in for a lot of re-decorating at this time, and the ceiling and offices are being treated to a coat of paint and a general over hauling.

Paper Demand Fairly Satisfactory in Boston

Sulphite Papers and Bonds in Greater Request Than Ledgers and Bonds With Rag Content—Fine Paper Prices Generally Holding Up To Schedule—Wrapping Paper Market Quietens Down—Conflicting Reports From Paper Board Industry

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., February 14, 1927.—Demand for paper in the market here is fair, although in some lines orders are not coming through as freely as they might. The call for sulphite ledgers and sulphite bonds, according to reports, is greater than that for ledgers and bonds with a rag content or all rag content. Prices for fine paper generally are holding steady. Sulphite ledgers are firm at 7½ to 15 cents, with rag and rag content at 15 to 30 cents and all rag at 38 to 52½ cents. In the bonds, sulphite is holding at 6½ to 11½ cents, rag content at 17 to 45 cents and all rag at 36½ to 55 cents. Many in the trade do not look for much price cutting because they feel that conditions are continuing to become normal all the time.

The market for wrapping paper is quiet. There has been some inquiry, but no large business.

Conflicting reports are heard in the box board market. Some box-makers say they are not receiving many orders from their customers, while on the other hand some apparently are doing a good business. A salesman for a Boston house handling this commodity reports favorably from concerns he has called on.

Wholesalers have marked down binder boards to 70 @ 75, compared with a former range of 75 to 80. One buyer stoutly refuses to pay even as much as 75. The market on chip board is firm at 45. Freight deliveries of box boards from the west are arriving in exceptionally good time. Some shipments from western Ohio were received at Boston within six days from the date they were forwarded. Ordinarily the period elapsing is ten days. One car arrived before the bill for the goods reached the office of the wholesaler.

Waste Paper Market Situation

More or less conflicting reports are also heard in regard to old papers, bagging, and rags. No. 1 mixed paper, some say, is apparently weakening, possibly because the supply exceeds the demand. Dealers handling such stock as blue overalls report an increased demand. The maximum figure for this stock is now 7½ cents, with the minimum at 7 cents, while previously a flat price of 7 cents prevailed. Khaki cuttings are moving within a range of 4½ to 5½ cents, while the previous price was a flat figure of 4½ cents. In some quarters augmented activity in mill buying of domestic rags both new and old, is reported and to a number in the trade the prospects are brighter for the sale of a greater volume of stock. Roofing rags are a little stronger. No. 1 roofing stock is quotable at $1.70 to $1.75. One of the dealers states that it is difficult to get a fixed value on any stock. It has been difficult for consumers to buy shirt cuttings at less than 11½ cents, f.o.b. shipping points, and some have sold at 12 cents. A mill offered 5 cents for a certain grade of shirt cuttings last week. A cablegram was sent by a Boston house with the reply that the seller abroad could do no better than 5⅞ cents. The mill in turn then offered 5½ cents. It is understood that eventually the mill bought 50 tons of stock. Since 1921 it has been impossible to look ahead in regard to prices, dealers complain. It is understood that bleached hosiery clips can now be bought for 10 cents and unbleached hosiery clips for 9 cents. Some dealers have become firmly convinced that prices have reached the lowest stratum.

A salesman states that paper mills in Holyoke do not show much interest in buying from dealers now, and it is felt that they are buying direct from the packers. It is stated, however, that there is probably little paper stock on hand, and that naturally this condition is the basis for the upward trend in price. Offerings of paper stock producers are small. One reason ascribed for any dearth of paper stock is that owners have been selling out their stocks, bought at high price, and taking their loss.

Rag Market Conditions

A Boston dealer says that many packers in Ohio and Pennsylvania have ceased making any commitments in rags until a revival in business or until the market adjusts itself. Sellers of rags do not care to pile up much stock in the face of little or no demand. Costs and carrying charges are too much of a dead weight. A cause for the lack of interest in rags, according to a Boston dealer, is the comparatively cheap cost of sulphite. Manufacturers of pulp paper have been cutting prices considerably. Sellers of sulphite bond are apparently educating the public to use more of this kind of paper. One concern has revised prices downward at least three times. Sulphite pulp is practically perfected. The supply of ground wood is abundantly forthcoming. Up to last July purveyors of rags had been doing a fair business, but since then they have not transacted nearly so much volume of business. It has been suggested that the rag paper mills buy the pulp mills. One of the dealers in rags predicts that the "spread" in rags and paper stock this year will not be great, in other words that sales will be made on a closer basis, with hand-to-mouth buying.

Foreign Rag Markets

The foreign markets for rags, on the other hand, are much stronger than that in the United States, according to advices from "across the pond." The American mills are quoting such low prices that dealers here are absolutely unable to buy in the foreign markets on a parity with prices here. Foreign rag packers have no difficulty in disposing of their accumulations at a higher price in their own country than they can command from mills here.

Miscellaneous Trade Notes

E. Kleberg, of Spaulding and Tewksbury, box-board dealers, 232 Summer street, recently returned from a ten weeks' trip abroad for that firm. He made new connections for his company in Belgium, France, Germany, Australia, Czecho-Slovakia, and Sweden. He found conditions in the paper industry abroad fairly good. While cash payments had been required for some time after the war, sellers of goods are now becoming less willing to allow credit as their position improves. There is still, however, more or less lack of capital, especially noticeable in Vienna.

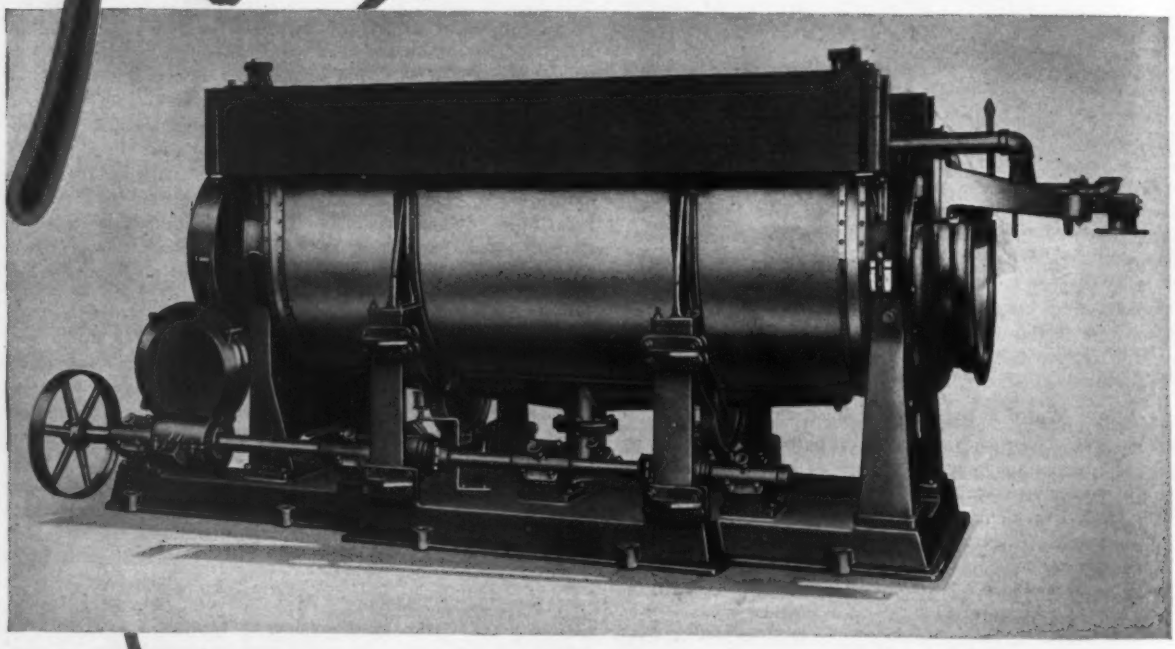
Louis E. Vose, of the firm of Hollingsworth & Vose, 333 Washington street, has just returned from a successful business trip to Japan, having been away about four months.

The thousand-sheet plan went into effect among the paper jobbers here Monday, February 14.

A meeting of the Fine Paper Division of the New England Paper Merchants Association was held Wednesday, February 9, for a continuation of the discussion of the thousand-sheet plan. President Charles A. Esty presided.

Joseph A. Warren, manager of the plant of S. D. Warren & Co., of Cumberland Mills, has been re-elected chairman of the Westbrook Memorial Library, Westbrook, Maine.

Announcing



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A worm drive, for compactness and safety—a new type of shake, for simplicity and more perfect screening action—an all copper vat, for performance—greater accessibility—these are some of the advantages of the Better Bird Screen. All can be readily applied to the original design.

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South Walpole, Massachusetts

660

Competition for Pulpwood Limits in Manitoba

Proposed Developments of Backus-Brooks Co. and Manitoba Paper Co. Raise Question of Whether There is Enough Pulp Wood Available for Both Enterprises—Federal Department Will Probably Make Own Survey Before Coming To Decision

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., February 14, 1927.—The bitter fight between rival factions in Manitoba over the disposal of pulp wood limits in that province has been carried to Ottawa, where the Federal Government is being asked, on the one hand, to grant leases, or, on the other hand, is being petitioned not to do so. It is a case of the E. W. Backus interests against the Manitoba Paper Company. The Manitoba Paper Company, which is now operating its new plant at Pine Falls, desires to erect another unit of 125,000 tons daily capacity and in order to insure the required supply of pulp wood it is seeking a new agreement with the federal government involving a guarantee of 6,000,000 cords of wood, and permitting freedom of selection.

As against this, the Backus-Brooks Company stands ready to erect a mill just outside of Winnipeg, at a cost of between $10,000,000 and $15,000,000, provided pulp wood is made available. The question is whether there is enough pulp wood available for both enterprises. An impression appears to prevail that there is not enough, and that the guarantee of pulp wood to one enterprise would have the effect of stopping the other. Up to the present, all the data as to pulp wood resources in the southern area, which is the area affected, have come from the companies now seeking limits. The possibilities are that the Federal Department of the Interior will make its own surveys before deciding the question.

Abitibi Co.'s New Subsidiary

Following the purchase of the assets of the Mattagami Pulp and Paper Company by the Abitibi Power and Paper Company, a bond issue of $4,000,000 has been floated on behalf of the Abitibi Fibre Company, Ltd. All the preferred and common stock of this latter company is owned by the Abitibi Power and Paper Company. The fiber company's property includes limits containing some 3,000,000 cords of pulp wood. At Smooth Rock Falls there is a modern high-grade sulphite pulp mill, with a manufacturing capacity of 50,000 to 60,000 tons per annum, of which about 30,000 tons is bleached pulp.

The company's own 9,000 hp. hydro-electric development at the millsite supplies power for current needs. At Yellow Falls, eight miles above the mill on the Mattagami River, the company has, under provincial lease, additional water powers capable of a minimum development of 4,000 hp. A further reserve of electric power is available from the Island Falls development of Abitibi Power and Paper Company, whose main transmission line passes within twenty miles of the Abitibi fiber mill.

Rayon Pulp Co.'s Offering

In Vancouver, an offering is being made on behalf of the Canadian Rayon Pulp Company, of first mortgage notes amounting to $750,000, to finance the construction of a mill for the manufacture of rayon. With each gold note is a 40 per cent bonus of common stock. The company's property consists of 34 acres of land, and is served by three railways.

Bathurst Co. Had Good Year

The annual report of the Bathurst Company, Ltd., of Bathurst, N. B., for the year ended December 31 last, shows improved earnings for the year and a substantial increase in working capital. Net operating profits, after manufacturing, selling and administration expenses, were practically the same as for 1925, being $853,437 as against $854,032, but material reductions in bond and other interest payments resulted in the net profit and loss balance for the year—after all charges, including income tax provision—of $68,191, as against $16,158 for the preceding year.

A feature of the net working capital position, as at December 31, 1926, is that bank loans show a reduction of $400,000 by comparison with 1925 figures. At the end of 1924 the company's statement showed a deficit of $26,660 at working capital account and the most recent statement therefore shows very gratifying improvement.

Wayagamack Co.'s Annual Meeting

The annual general meeting of the shareholders of Wayagamack Pulp and Paper Company, Ltd., was held at the head office of the comapny, Three Rivers, during the week.

The following were elected directors: Norman J. Dawes, G. H. Duggan, Hugh Mackay, K.C., Alexander Maclaren, James W. Pyke, J. Frater Taylor, C. R. Whitehead.

At the subsequent meetings of the directors, C. R. Whitehead was elected president, and James W. Pyke, vice-president.

Fir and Cedar for Pulp?

Woods which a few years ago were regarded as useless for that purpose are now being successfully utilized in the manufacture of pulp in British Columbia pulp and paper plants. Several of the large pulp manufacturing concerns of the coast have been experimenting with new woods for some years, and the tests in the majority of cases have been surprisingly satisfactory to chemists and engineers in charge of the work.

According to some pulp experts, it will be possible in a few years to use large quantities of fir and cedar in the manufacture of pulp wood. Hemlock, spruce and balsam are now being used principally, but the range of species usable is steadily being widened as a result of the experiments.

If fir and cedar can be used for the manufacture of pulp on a practicable basis, it will mark an important step in the industry, because these species are obtainable in greater volume and much more easily than those that are at present being utilized. Every year the pulp wood logging contractors are forced to go further afield for their supplies of raw material.

Cotton wood and poplar, which grow extensively in the northern interior regions of the province, may be used in the event of a pulp mill being established near Prince George. Such a project is now said to be a live issue, likely to materialize during the next few months.

Birmingham & Prosser Co. Elects Officers

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., February 8, 1927.—The Bermingham & Prosser Company re-elected all officers and directors at its last annual meeting as follows: President, Arthur T. Bermingham; vice president, Walter P. Bermingham; secretary-treasurer, Louis P. Simon; treasurer, Henry G. Prosser. These four and W. P. O'Donoghue, constitute the directorate.

New Bates Valve Bag Factory at Menominee

In announcing the prospective opening of the new factory of the Bates Valve Bag Company, the location was given as Marinette. The correct location is of course, Menominee, Wis., where the plant and factory of the Hoskin-Morainville Paper Company also are located.

Section of the

Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Conducted by W. G. MacNAUGHTON, Secretary

Roof Construction in Paper Mills

By G. D. Bearce, Engineer[1], News Print Service Bureau

One of the most important features when considering the construction of the machine room of a paper mill is the type of roof construction that will give best results from a standpoint of long life and effective operation. This is also a problem of importance when renewing old machine room roofs that have seen service for a number of years. Roof construction and ventilation are closely allied and these two things are largely responsible for the sweating and dripping that sometimes occurs from the roof of the machine room. It is obvious that this condensation of moisture is caused by the contact of warm humid air with the colder roof. The greater the transmission of cold through the roof or inversely, the loss of heat due to inadequate insulation, the greater the sweating or dripping. Such a condition indicates that there is an appreciable loss of heat units partly because of inadequate roof construction which, during the course of a year, will amount to an appreciable physical loss in the form of excessive use of coal.

Two Phases of Problem

The problem of keeping the machine room in good condition has two phases:

1. The control of humidity conditions of air that comes in contact with the roof.
2. The reduction of heat loss by retarding radiation.

Conditioning of the Air

During the past few years much ha... gard to the proper conditioning of ... hood and ventilating systems. It is ... a hood is used the vapor rising from ... centrated and carried out of the mac... midity. The fact that this vapor is ... midity indicates a smaller loss than w... were used and a larger volume of ai... off the same amount of vapor. This ... "excess air" in the boiler house. No ... will allow its stack gases to rise to a h... or run a high CO_2 which results in ... each cubic foot of which carries off a ... same principle applies to the heat units ... monitor of a machine room in the form ... air" should be kept as low as possible.

The question of humidity should be ... and in most well operated mills the con... that a minimum loss is experienced. Seve... chart that will tell them exactly what hu...

[1] Member TAPPI.

off through the machine room roof and the flow of air can be adjusted to take care of the changing atmospheric conditions outdoors, or the varying conditions of drying.

The most modern mills have adopted the Briner economizer which is recognized to be the only logical method of conserving and reclaiming the heat units from the vapor leaving the paper machines. The incoming outside air is heated up by this economizer and thus the saving is effected. While it is true that there are several similar systems that use water to reclaim the heat in the vapor leaving the paper machine, as yet no practical and economical plan has been devised that gives the satisfactory results of the air economizer.

Matter of the Ventilating System

Closely allied to the economizer is the ventilating system, and although there are many opinions regarding the best method of handling the air on the paper machine, this is a matter which must be determined after considering the type of machine, manufacturing conditions and other factors involved. It is not enough to blow a vast amount of air into a paper machine room and call it ventilation, but the conditions should be accurately determined and the correct amount of air supplied at the proper points to adequately carry off without undue heat loss, any vapor that is produced in the drying process.

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Peshtigo Paper Co. Mill to be Sold at Auction

Former Receiver John D. Bird Reports Result of Operations Satisfactory Enough to Show Plant May Be Operated at a Profit—New Receiver Plans to Conduct Mill on Full Time Basis Volume of Business to Be Built Up Considerably

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., February 11, 1927.—With the appointment of P. M. Allen, of Detroit, Mich., as receiver, and the issuance of an order by Circuit Judge William B. Quinlan to offer the plant for sale on May 2 at a sheriff's sale, the final chapter will be written in the failure of the Peshtigo Paper Company, Peshtigo, Wis., a wartime venture. Liquidation is expected to bring about a reorganization such that the plant will be able to produce at capacity and earn a profit.

Mr. Allen, who formerly was in charge of the Detroit Pulp and Paper Company, succeeds John D. Bird, president of the American National Bank, Milwaukee, Wis., as receiver. The latter conducted the receivership for about a year and a half, but resigned on January 14, 1927. He continued his work, however, until Mr. Allen could relinquish his Detroit connections and take charge of the Peshtigo mill.

Involuntary bankruptcy proceedings were started about eighteen months ago by the First Wisconsin National and the American National Banks, Milwaukee, to protect loans of $225,000 made to the paper company. It is believed that the banks will lose about $125,000 in the reorganization and that the total losses incident thereto will be $300,000.

A book value of $2,264,960.90 is given the property at the present time. The outstanding securities are said to be $1,114,000 of first mortgage bonds, $600,000 in debentures, $991,000 of first preferred stock, $230,000 of second preferred stock, and $228,000 of common.

The plant is considered capable of earning a gross revenue of $1,500,000 a year. It employs 225 men when running full time, and consumes 35,000 cords of wood and 12,000 tons of pulp a year.

Mr. Bird in his petition to the court when asking to be relieved as receiver, indicated that the result of operations was satisfactory enough to make it evident that the company could be operated at a profit provided a sufficient volume of orders could be produced and a normal price secured. He recommended the sale of the assets of the receivership at a public auction as a whole, subject to the lien of the trust deed securing the payment of the outstanding first mortgage bonds. It was on this recommendation that Judge Quinlan ordered the plant for sale on May 2.

One of $157,679.17 received by the Peshtigo mill for the sale of its water power property in 1925, there is $125,000 in the possession of the First Wisconsin Trust Company, Milwaukee, the remainder having been used for improvements in the plant.

Mr. Bird received $9,000 as remuneration for service covering a period of nineteen months, and Edgar L. Wood, his attorney, received $5,000 for the legal work.

It is the plan of Mr. Allen, the new receiver, to do away with the plan of part time operation and conduct the plant on a full time basis. He expects to build up a volume of business that will make this possible, and is confident of the future of the mill.

This mill was built at the time of the World War when prices were at a high level. The depreciation following the war inflation period wiped out the profits and caused the borrowing of large sums to keep the mill in operation.

D. P. Davies to Join Rainier Organization

Western mills are taking another executive of the Fox River Valley with the resignation of D. B. Davies, who for the last three years has been superintendent of the Hoberg Paper and Fibre Company, Green Bay, Wis. Mr. Davies will leave about March 1 for the Pacific coast, where he will take a similar position with the Rainier Pulp and Paper Company, Shelton, Wash. This mill will be ready for operation about April 1, starting with one machine and about 250 men. Another machine will be added about the middle of the summer. The Shelton plant will manufacture bleached sulphite pulp and sulphite bond paper.

Mr. Davies' successor at the Hoberg mill will be Max Ketter, according to announcement of J. M. Conway, General manager. The new superintendent has been with the Hoberg mills for 15 years and of late has been superintendent of maintenance.

In his new field in the west, Mr. Davies later will have charge of a second mill owned by the Rainier company, now being built at Gray's Harbor, on the Pacific side, about forty miles from Shelton. Mr. Davies came to Green Bay six years ago as assistant mill manager for the Northern Paper Mills, and then took the superintendency of the Hoberg mill.

News Print from Hard Woods

Experiments at the United States Forest Products Laboratory at Madison, Wis., have resulted in the development of a new process for making news print from hardwoods. Birch, aspen and possibly maple can now be used with success in the making of print, and southern gumwood also will fit in with the process. This will help solve the problem facing northern Wisconsin mills, which have been obliged to change over to book paper or specialties owing to the diminishing supply of nearby timber. The use of hardwoods may give them an opportunity to continue making news print to advantage for many years to come.

Safety School Session

More than 200 men from the central Fox River Valley attended the opening session of the foreman's safety school here this week. The speakers were R. G. Knutson, of the Wisconsin Industrial Commission, H. G. Noyes, director of paper mill education in Appleton Vocational school, and Hugh G. Corbett, secretary of Apple ton Chamber of Commerce. The human waste in industry was emphasized and the foreman urged to eliminate it.

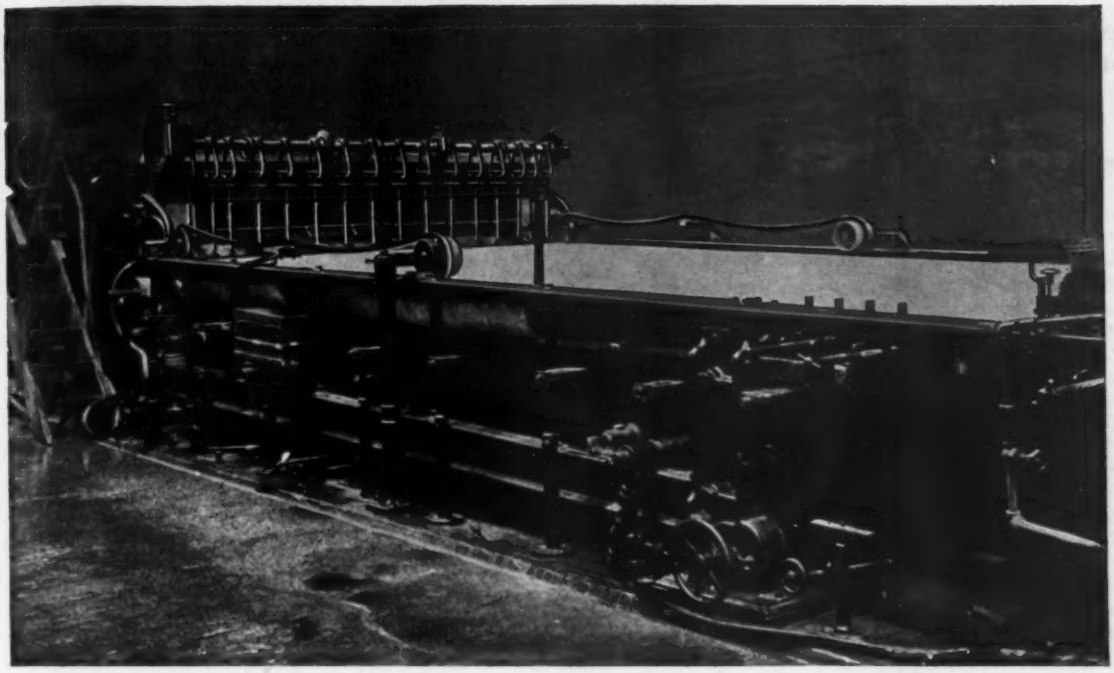
Among the paper mills and allied industries represented were: Appleton Coated Paper Company, Kimberly-Clark Company, Thilmany Pulp pand Paper Company, Valley Iron Works, Fox River Paper Company, Wisconsin Wire Works, Combined Locks Paper Company, Riverside Fibre and Paper Company, and Appleton Machine Company. These plants had 107 men enrolled.

A similar school, which opened its sessions this week at Green Bay, Wis., has an enrollment of 300. The first speaker was George P. Hambrecht, director of vocational education for Wisconsin.

Northern Electric Plant Near Completion

Indications are that the dam and power plant of the Northern Electric Company at Chalk Hills, on the Menominee river near Amberg, Wis., will be completed about May 1. One of the approaches is finished and the building for the power plant is ready to receive the machinery. Work on the middle section of the dam is under way and progressing nicely. All attempts to resume work on the twin dam and power plant of this company at White Rapids have failed. High water and an ice jam caused the work to be inundated and nothing can be done until spring, the contractors decided. Construction will be completed late next fall. The Northern Electric Company is a subsidiary of the Northern Paper Mills, Green Bay, Wis.

(Continued on page 58)



The Voith High Pressure Stock Inlet Makes Better Paper at a Lower Cost

1. IT ASSURES PAPER OF UNIFORM CALIPER
   Ordinary slices on a Fourdrinier machine result in irregular distribution when the stock is injected onto the wire. This causes irregularities in the caliper of the paper across the trim of the machine. Fine adjustments easily made on the Voith Inlet make a sheet of uniform thickness across the entire width of the wire.
2. HELPS TO ELIMINATE LUMPS AND FOAM SPOTS
   With slices the stock is damned up and carried in a head on the wire, thereby causing much foaming. The Inlet mixes the stock and feeds it evenly onto the wire which helps to eliminate foaming and consequent lumps and foam spots.
3. MORE FORMATION SURFACE ON THE WIRE
   The usual long apron and slices are eliminated by the Voith Inlet. This gives additional forming and draining surface on the wire for the sheet and results in better paper.
4. WIRES GIVE LONGER SERVICE
   By doing away with slices it is unnecessary to build up a head of stock on the wire, thus saving wear and tear on the wire and insuring longer life.
5. CUMBERSOME DECKLE WASHING PANS ELIMINATED
   The Voith Inlet has a deckle washing device which washes the deckle at the point of the deckle pulley, thus omitting the cumbersome pans on the wet-end of the paper machine.
6. INLET EASY TO OPERATE
   Because it is easy to operate and adjust, it appeals strongly to machine tenders and the operating force in the mill.
7. PAPER MACHINES CAN BE SPEEDED UP
   When drying capacity is available, the patented Voith Inlet makes possible the speeding up of the machine, and increases production. In many mills this increase has amounted to ten per cent and over.

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Los Angeles Paper Trade "Marking Time"

Demand, However, Is Expected To Be Back To Normal Proportions In the Near Future—Charles A. Elvin, Secretary, Who Has Just Opened Offices in the Hellman Bldg., Will Endeavor to Bring Paper Box Men Together—Heavy Exports of Mulch Paper

[FROM OUR REGULAR CORRESPONDENT]

LOS ANGELES, Cal., February 11, 1927.—The present demand for paper in all grades is not as great as the jobbers would like to see it but after all, most of them feel fairly well satisfied with what is being done. Following up abnormally heavy demand during December, January necessarily fell off considerably, and the return to normal conditions has been slower than it was last year or for the year before. As one of the jobbers remarked this morning: "We are just marking time but we all feel confident that trade will come back to normal proportions in the near future and there is nothing to do but wait without impatience.

No Price Changes of Consequence

There have been no price changes of consequence since about the first of the year and none are anticipated for an indefinite time to come. Apparently the market is practically stabilized and all indications are that it will remain in that conditions. The tendency toward a strong market, which was marked about the first of the year, still remains the dominant fact of the trade and the spirit of confidence in the future, which appeared about the same time, still persists. From all indications one will be fully justified in the assertion that the paper trade situation, as far as Southern California is concerned, is in a much more healthy state than it has been for many months past.

Collections continue to be slow and measurably unsatisfactory. However, they are no worse than they have been for the last sixty days and most of the jobbers feel that after all this is a fairly satisfactory condition.

Getting Paper Box Men Together

The paper box manufacturers, both set up and folding, haye been trying strenuously during the last thirty days to get together upon some rational basis of agreement which would permit them to enter the year 1927 with a better assurance of a prosperous year than they had at the beginning of 1926. Early in December a series of meetings began which has continued practically ever since but without avail as far as eventuating in any definite plans for a working agreement. About all that has been accomplished is the appointment of a secretary who is taking over the work of trying to get the manufacturers together and thus is relieving some of the manufacturers, who have been most active in the past in the efforts to revive the association from their individual efforts in this direction.

C. A. Elvin Appointed Secretary

Charles A. Elvin has been selected as secretary, upon the recommendation of the secretary of the San Francisco Association, and an office has been opened in room 426, H. W. Hellman Building, Fourth and Spring streets. Mr. Elvin, not being a paper box man himself, is in a position to take an impartial view of the situation and is working with his utmost endeavors to bring things to a head for the manufacturers of both kinds of boxes. Mr. Elvin is an experienced newspaper man, having been managing editor of a chain of papers in Michigan and Ontario and is relatively a new importation into Southern California. He is very sanguine that his endeavors to bring order out of the present chaos in the paper box industry will result successfully.

Two factors have stood in the way of an amicable agreement in the paper box industry and these are first, the excessive competition induced by the productive capacity of the numerous factories making both set up and folding boxes in Los Angeles, which, under present trade conditions, is far in excess of the probable demand, and. secondly, the apparent disinclination of one manufacturer to believe in the sincerity of his brother manufacturer. Probably these two different factors may be regarded as cause and effect—at any rate, combined, they offer a sufficient explanation for the present unsatisfactory condition in this department of the paper industry.

However, with a distinterested man on the job who is working for the idea of association the hopes are growing that something definite will eventuate and that ultimately the results will be very gratifying.

Shipping Large Quantities of Mulch Paper

During the month of January the Pioneer Paper Company, of Los Angeles, shipped 21,000 pounds of mulch paper to the island of Maui. There has been developed an immense demand for mulch paper among the pineapple growers in the Hawaiian Islands during the last two or three years. For this purpose, and for the growers of sugar cane in Cuba and Porto Rico, and for use in the fields in the Philippine Islands, in excess of 500,000 pounds of mulch paper was exported by the Pioneer Company during the year 1926. Already this year, according to statements made by officials of the company, orders for this type of paper have been received in such amounts as to warrant the conclusion that the exports during the current year practically will double those during the year 1926.

To Start Waxed Paper Plant

Southgate, an industrial suburb of Los Angeles, bids fair to become a very important paper manufacturing center. Here the National Paper Products Company is just completing its board mill, a part of which will be utilized as a folding paper box manufacturing plant, and now comes word that a wax paper plant is to be established there. A building permit has been issued for the erection of a building 40 x 100 feet in size, to cost approximately $4,000, to be used for this concern. F. L. Kennedy, who was engaged in the manufacture of wax paper in the East, recently came to Los Angeles to live and getting tired of resting, despite the wonderful climate out here, decided to re-engage in the business with which he was familiar. He says he has investigated the market for wax paper out here and has come to the conclusion that it is sufficient to warrant the establishment of this new enterprise.

Folding Paper Box Corp. Formed

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., February 8, 1927.—The Folding Paper Box Corporation, of Kalamazoo, capital $10,000, has filed articles of incorporation with the secretary of state and is now established at 710 North Burdick street. The officers are: President, John J. Vande Berg; vice president, George J. Bachmeyer; secretary-treasurer, John E. Burger. The business of this concern is general printing as well as the manufacture and sale of paper and wooden boxes.

Canadian Rayon Pulp Co. To Build

BELLINGHAM, Wash., February 10, 1927.—J. J. Herb, president of the Pacific Coast Paper Mills of this city and of the New Westminster Paper Mills, states that interests headed by himself under the name of the Canadian Rayon Pulp Company will build on Copper Island, New Westminster, B. C., a 70-ton sulphite plant and a twenty-ton ground wood factory. Work will begin in about one month. The plants will cost $750,000.

When Nature Put Her Writing In the Rocks

BACK in the days when the earth was young, the only message were those of terror and hate and the warning of approaching dangers. Plodding the vast miasmal swamps were gigantic lizards fifty feet long, enormous bats with a wing spread of ten feet or more, crawling things possessing the size and gait of a war tank, and ferns that grew to tree-like dimensions.

All these have passed away. The gigantic bats have left their forms impressed in aging layers of slate; the dinosaurs are remembered only by their footprints in the Jurassic rocks, a few ten-million-year old eggs in the dry storage of the Gobi desert, and some fossil bones that impress the beholder with astonishment at nature's versatile powers; while the fern "trees" bequeathed us a heritage of coal.

Today men harness the forces of climate and growth that put the gigantic forms of an earlier creation out of existence.

Nature's writing is a product of accident and of ages—man's of will and paper.

HAMMERMILL PAPER COMPANY

Erie, Pennsylvania

Paperboard Industries Association Meets

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, February 14, 1927.—Members of the Paperboard Industries Association met at the Palmer House, Chicago, January 19 and 20 in group sessions. The General Meeting of all the members was held Thursday afternoon, January 20 with an excellent attendance.

President J. P. Brunt presided at the general meeting of the three groups. The meeting was well attended and productive of much constructive work. The President's Report covered the action and recommendations of the Executive Committee with respect to finances; a proposed increase in sales promotion activities; changes in the personnel of the Standing Committees; a change in the Booklet of Standards, etc. The report was well received and the recommendations of the Committee were fully adopted.

Changes in Standing Committees

The following changes were made in the personnel of the standing committees for the current year: John J. Brossard was appointed Chairman of the Research Committee, in place of Hugh Strange, who advised that he would be unable to serve in this capacity; Mr. Strange was requested to continue as a member of the committee.

J. L. Gable was appointed a member of the Transportation Committee, in lieu of P. R. Allen, who was unable to serve. David Weber was appointed a member of the Trade Customs and Practices Committee, in lieu of H. C. Stevenson, who was unable to serve. Henry D. Schmidt was appointed Chairman of the Sales Promotion Committee, in lieu of H. C. Campbell, who was unable to serve as Chairman; but who will continue as a member of the Committee.

Election of Members

The following companies were unanimously elected to membership: American Box Board Company, Grand Rapids, Mich., Paperboard, Container, Folding Box; Consolidated Paper Company, Monroe, Mich., Paperboard, Container, Folding Box; River Raisin Paper Company, Monroe, Mich., Paperboard, Container; Superior Paper Products Company, Carnegie, Pa., Container.

General Manager's Report

General Manager Browder submitted a report covering major activities of the Association during the past sixty days. The report made mention of the following major subjects: General Association Activities: Traffic and Classification Matters; Export trade in Fibre Containers; Research and Laboratory Reports; Sales Promotion and Publicity.

Discontinuance of Service at Mellon Institute

The members elected to discontinue the contract with the Mellon Institute of Industrial Research, Pittsburgh, as of February 1, 1927. The other two laboratories, one at Chicago, Ill., and the other at Rockaway, N. J., will be continued as at present.

Elimination of Sunday Work

The members of the Association voted to amend paragraph 8 of the Constitution as follows:

"8—a. After February 1, 1927, it shall be an offense against the Association, punishable under Article 8 of the Constitution, for any member of the Paperboard Group to operate his mill for the production of paperboard in violation of the resolution adopted by the industry at Washington on May 2, 1924, at the request of the United States Secretary of Labor, which resolution reads as follows:

"'It is the sense of this meeting that we change the working hours of the industry to five days of operation, consisting of 120 hours, the sixth day reserved for the changes and repairs, and the entire elimination of all Sunday work'."

In the absence of Chairman W. S. Goodwillie, A. J. Redemski reported for the Committee on Trade Customs and Practices. Among other subjects reported upon, the Committee recommended to the meeting the adoption of the Code of Ethics, which has been under discussion at recent meetings. Members voted unanimously to adopt this code and copies will be printed and distributed in the near future.

Sales Promotion Committee's Report

Chairman H. D. Schmidt of the Sales Promotion Committee reported with respect to accomplishments in the way of extending the use of the products of the industry during the past two months; also with respect to the program to be undertaken in the immediate future. The Committee's detailed report is being mailed to all members of the Association. As a special feature, the Committee has arranged for the Sales Promotion Representative to meet with Members' sales forces, in the various centers, and explain to them just what is being accomplished in the way of promoting the use of the products of this industry.

Standardization Committee's Report

Chairman Sidney Frohman, of the Standardization Committee, reported that the Committee has recently been giving consideration to the proper specifications for containers to carry weight limits in excess of those now authorized for freight and express shipments. He mentioned that good progress is being made in the investigation and expressed the hope that if there are any individual members who are making experiments along these lines they would advise the General Manager, furnishing all details, so that any recommendations or suggestions made may be in the best interest of the industry.

Tribute to President Brunt

Speaking for the members of the Association located in New York City and vicinity, Samuel Kipnis congratulated the Association on the election of J. P. Brunt, as its President. He pledged to the new president and to the Association the honest and intelligent support of the New York members on any movement made for the betterment of the Paperboard and related industries, and offered the assistance of the New York members and of himself on any activities considered to be in the interests of the industry as a whole. Mr. Kipnis' remarks were well received and met with applause.

General Business Conditions

President Brunt introduced Dr. E. O. Merchant, the Association's Economist, who submitted a report on the subject of "General Business Conditions and the Paperboard Industries." In this report he reviewed the situation in 1926 and also made a forecast for 1927. The Economist's remarks were supplemented by reference to charts depicting basic conditions in the paperboard and container industries, as well as other charts showing the trends in the more or less analogous industries.

Folding Box Group Meeting

The Folding Box Group Meeting was held Wednesday morning, January 19th with Vice-President H. S. Hinkle presiding. In his report to the meeting, Vice-President Hinkle summarized the sales promotion activities of the Association, particularly with reference to ways and means for promoting the use of folding boxes. He also reported upon other subjects of interest to the Group which has been considered by the Executive Committee.

Statistics and Accounting

Grafton Whiting, Statistician, reported upon the statistical charts and summaries showing operations in the Folding Box Industry. The statistical work for the Group has been in operation for over a year and this work is becoming of increasing

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value as the period of time on which the comparisons are based takes in longer periods. The charts and summaries discussed at the meeting covered the following items: Days to Run; Operation of cutting and creasing presses; Activity of the printing divisions; Plant activity as a whole, and seasonal variation.

The Folding Box Group is also making a detailed study of the subject of depreciation. Information is being collected to show practices obtaining in the industry, and after this study has progressed further, it is expected that sufficient data will be available so that a standard basis of rates may be presented to the Internal Revenue Department, looking to its adoption as the proper basis for depreciation in machinery, etc., used by the Folding Box Industry.

Members also discussed the uniform cost system which is in operation in some of the plants.

Vice-President Hinkle made some interesting remarks on the subject of "Waste in Industry—Other than Manufacturing," which were well received.

Other subjects discussed at the meeting were: Trade Customs; The Outlook for 1927, and the Collection Service for Folding Box Manufacturers, through the medium of the Association.

Paperboard Group Meeting

Members of the Paperboard Group met on Wednesday afternoon, January 19, Vice-President W. J. Alford, Jr., presiding at the meeting. In his report to the meeting Vice-President Alford said:

" We are now beginning a new year. We should start the year right by making our Association count for even more than it has in the past. The new year is an appropriate time for new resolutions and renewed effort. You must stand behind your Association and work for it at all times; the more you put into it, the more you will take from it. You have a loyal staff and it is up to the membership to support it loyally.

"We should pay attention to our weekly reports and also to the sales promotion work, both of which are most constructive activities.

"I am sure you could hardly conceive this Industry struggling to get along without an Association. The getting together of members of these meetings enables us to study our problems to see what can be done to improve them. While it is all right for a member to be critical, criticisms should generally be restricted to those which will bring about more constructive things.

"Assuming that we had no Association and someone came to us, for instance, Babson's, and offered to secure detailed reports for us on orders, production, etc., and send them to us each week as we now receive them, we would doubtless be willing to pay a very high price for such service. Such a service is now available to us through the medium of our Association, and it is only a part of the constructive benefit which comes to us as a result of our membership."

Vice-President Alford presented to the meeting some very interesting figures showing operations during 1924, 1925 and 1926.

Depreciation

In connection with this subject, Grafton Whiting, Statistician, reported that a questionnaire had been sent to all of the mills, the purpose of which is to secure information showing the rate of depreciation on the different machines in the Paperboard mills, the object of which is to get a basis for a compilation of depreciation rates justified by present practice in the industry. He mentioned that reports received to date indicate a wide variation in applying depreciation to specific items. For instance, he stated that on conveyors and elevators, some mills depreciate at the rate of 2½%; others at the rate of 10%. He felt it is evident that the same type of machinery is being reported upon with a wide variation in the rates applied by the individual members. It is contemplated that after the proper basis has been arrived at, it may be presented to the Internal Revenue Department with a recommendation that it be adoped as the standard for the Paperboard Industry. It was mentioned at the meeting that any standard basis that may be adopted will not be retroactive with respect to any tax returns which have been audited by the Internal Revenue Department. The Statistician also explained the charts and summaries covering operations in the Paperboard Industry.

Use of Inferior Container Board

The Paperboard Group meeting went on record as being in favor of cooperating fully with the Container Group members in eliminating the manufacture and use of inferior container board. It was the sense of the meeting that the Paperboard Group can assist materially by doing its utmost to see that any linerboard sold for use in corrugated boxes is of such quality as meets the specifications of the railroads and express companies for so-called test boxes.

General Manager Browder reported to the meeting that indications are that the use of inferior linerboard is being materially reduced. He stated that the Association will continue its effort in the direction of the elimination of use of any boxes which do not meet the specifications of the carriers.

Container Group Meeting

The Container Group meeting was held Thursday morning, January 19, with John L. Barchard, a member of the Executive Committee, presiding in the absence of Vice-President Irving Hill. Chairman Barchard's report to the meeting was well received. He stressed the necessity for improving the quality of corrugated and solid fibre shipping containers. The keynote of his remarks was that regardless of the prices at which containers must be sold, it is the duty of the Container manufacturer to maintain quality. He expressed the thought that in the past there has been too great a tendency to build a product to suit the price obtainable, and he did not feel that the members of this Association could afford to follow a practice of this kind.

Chairman Barchard also referred to the Code of Ethics, the adoption of which would be considered at the general meeting of the three groups, and in connection with this he stated:

"We must also address ourselves to the subject of Ethics—that is, good business practice. At our meeting this afternoon, we will consider the adoption of a Code of Ethics. This Code merely reflects good business practice and we as an industry are interested in following good business practice. Let us consider this important subject and give it our most careful attention."

Report on Trade Customs

F. A. Morris, a member of the Committee on Trade Customs and Practices, submitted an interesting report which was well received.

Eliminating the Use of Inferior Boxes

The Group gave serious consideration to the important subject of elimination of manufacture of inferior boxes. Statistics are being collected to show the amount of low-test board which is purchased, and an effort is being made to ascertain just how much of this product is improperly used in the manufacture of test boxes.

General Manager Browder reported that while the situation may be considered to be well in hand, the activity of the Association will be directed to discovering any boxes which fail to meet the requirements and taking appropriate action to discontinue their use.

Statistics and Accounting

In his report covering statistical subjects, Mr. Grafton Whiting, Statistician referred to a study which is being made to develop the proper basis of depreciation applicable to the Fibre Container Industry.

The Container charts and summaries were reported upon and discussed.

(Continued on page 60)

ANNOUNCEMENT

The Pusey and Jones Corporation

Has acquired all of the Assets and has assumed all of the Liabilities of

The Pusey and Jones Company

The handicaps incident to the litigation with the United States Shipping Board Emergency Fleet Corporation and Foreign stock ownership have been removed by Receivers' Sale.

The corporation is now owned by aggressive American interests and will vigorously pursue the business. There will be no change in the Management or its personnel.

THE OFFICERS ARE:

CLEMENT C. SMITH, Chairman of the Board

WM. GRISCOM COXE, President **C. STEWART LEE, Vice-President**

CLARENCE B. LYNCH, Treasurer **J. H. DEINLEIN, Secretary**

WILMINGTON, DELAWARE **JANUARY 20, 1927**

New York Trade Jottings

The Congress Paper Company, Inc., specialists in paper, twine and cardboard, are now installed in their new offices at 1123 Broadway, New York.

* * *

W. H. Donaldson is now associated with the Perkins-Goodwin Company, of 33 West 42nd street, New York, having severed his connection with Howell-Donaldson, Inc.

* * *

The American Paper and Pulp Association reports that the Joint committee on Approved Chemists has recently approved for listing J. L. Polk, of the Mohawk Paper Makers, Inc., Cohoes, N. Y.

* * *

The Bailey Paper Company, of 299 Broadway, New York, have been appointed by the Hamersley Manufacturing Company, as distributors of Wallington English Finish and Supercalendered book, made in Garfield, New Jersey.

* * *

The members of the Paper Box Makers Union who have been on strike in New York have been ordered to return to work by Fred Caiola, manager of the union, following a meeting at which the strikers decided to end their seventeen weeks' struggle. Lack of public support and of funds for relief were the causes attributed to the collapse of the strike.

* * *

The District of Columbia Paper Manufacturing Company announces that it has now four paper merchants distributing the Executive Lines in New York City, viz., the Forest Paper Company, Inc., of 334 Hudson street; Marquardt, Blake & Decker, Inc., of 153-155 Spring street; M. & F. Schlosser, of 220-230 West 19th street, and the Seymour Company, of 323-329 West 16th street.

* * *

A. E. McMaster, general manager of the Powell River Company, Ltd., Vancouver, B. C., spent several days in New York last week. Accompanied by G. Frank Steel, the well known news print expert, he is now making a two weeks tour of the southern states. Later, Mr. McMaster plans to visit California before returning to Powell River. He reports that one of the new machines recently installed at Powell River is now producing the high record of 127 tons of news print daily.

* * *

The Hill Clutch Machine and Foundry Company, Cleveland, Ohio, recently appointed Charles C. Phelps, 473 Getty avenue, Paterson, N. J., as sales engineer for the metropolitan New York and northern New Jersey district. The manufacture of the Hill Clutch Machine and Foundry Company includes everything for power transmission, such as shafting, couplings, bearings, clutches, pulleys, sheaves, belt tighteners, speed transformers, agitators, gears and sprockets. The featured products of the company are, the "Cleveland Type" oil-film bearings, "Smith Type" friction clutches, "Steel Arm" automatic belt tighteners, "Forged Cast" spur gears, "Industrial Type" spur gear speed transformers, and flexible couplings.

* * *

The Nominating Committee of the National Association of Waste Material Dealers, Inc., composed of Clarence White, Nat E. Berzen and William Steck, with James Rosenberg, advisory member, submit the following nominations which will be acted upon at the annual meeting to be held at the Hotel Astor, New York, on Wednesday morning, March 16:—For President: G. H. Rady, E. J. Keller Co., Inc., New York. For Directors for Two Years: Egmont L. Frankel, Frankel Bros., Ltd., Toronto, Ont.; Harry R. DeGroat, A. M. Wood & Co., Inc., Philadelphia; Carlton B. Overton, Castle & Overton, Inc., New York; Stuart B. Sutphin, I. V. Sutphin Company, Cincinnati; Joseph Michaels, Hyman-Michaels Company, Chicago; George M. Graves, Geo. M. Graves Company, Inc., Boston; E. B. Friedlander, The Lowenthal Company, Chicago; Fred Mayer, Republic Metal and Rubber Company, St. Louis; Mark B. Speer, M. B. Speer & Co., Inc., Pittsburgh; A. J. Moran, A. J. Moran & Co., New York; Isaac Marx, A. Marx & Sons, Inc., New Orleans; E. H. Silberman, The S. Silberman Company, Cleveland; Richard Nathan, Texas Scrap Material Company, Dallas, Texas; Morris Gintzler, J. Andersen & Co., New York, and A. Glant, Charles Harley Company, San Francisco. Director to fill unexpired term of G. H. Rady, Herman Goldstein, R. Goldstein & Son, Inc., Baltimore. The Fourteenth Annual Banquet of the association is to be held at the Hotel Astor, New York, on the evening of Wednesday, March 16.

Paper and Twine Dinner Successful Event

The annual Dinner-Dance of the Paper and Twine Board of Trade was held at the Pennsylvania Hotel Roof-Garden on Saturday, February 12. There were over two hundred present, including many men well-known in the trade. There was a large representation of mill men there, and all seem to take a keen interest in the welfare of the organization.

Benj. F. Kushel acted as toastmaster and, after outlining the aims of the association, concluded his speech by presenting a gold watch to President Charles Greif, as a token of appreciation for his services to the cause.

Mr. Greif responded and expressed his gratification in having been associated with so many men of broad vision whose friendship he would always cherish. After reviewing the history of the organization, he made an appeal to those not members to join and assist in the campaign that is being conducted for a better and cleaner paper and twine business.

The other officers were not forgotten, and gifts of silver were bestowed on Treasurer M. M. Cohen, and Secretary Michael H. Sincoff. The Vice-President, Sylvan Levy, was presented with a very unique and handsome pocket cigar lighter. The speechmaking was concluded by the secretary, who dwelt on the good that had been accomplished by the organization in the past year.

A very fine dinner was served and this was followed by dancing until the clock struck two. The officers received many compliments on the excellence of the affair. A handsome souvenir program was issued, and the ladies were presented with a souvenir of a type that is dear to the feminine heart.

Bids and Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., February 14, 1927.—The Printing Office has received the following bids for 9,037 pounds of 31½x36—80, white and yellow sulphite bond: Lindemeyr & Harker at 8.1 cents and 9.1 cents per pound; Old Dominion Paper Company, at 9.44 cents and 10.44 cents; and Aetna Paper Company, at 7.82 cents and 8.92 cents.

Bids will be received by the Printing Office on February 21 for 324 pounds (1,500 sheets) of 24x36 brown cloth lined paper and for 500 sheets of 18x23—12 points overlay board.

The Cauthorne Paper Company has been awarded the contract for furnishing the Government Printing Office with 40,000 pounds (40,000 sheets) of 26x38—No. 50 chip board at $39.98 per ton. The Whitaker Paper Company will furnish 40,000 pounds (24,500 sheets) of various sizes No. 2 quality binders board at $68.00 per ton. Bids for these items were received on January 26.

The Allied Paper Mills have been awarded the contract for furnishing the Government Printing Office with 67,250 pounds (250,000 sheets) of 38x48—269, single coated book paper at 7.47 cents per pound, bids for which were received on February 2.

There Isn't A Stuff Pump Like It

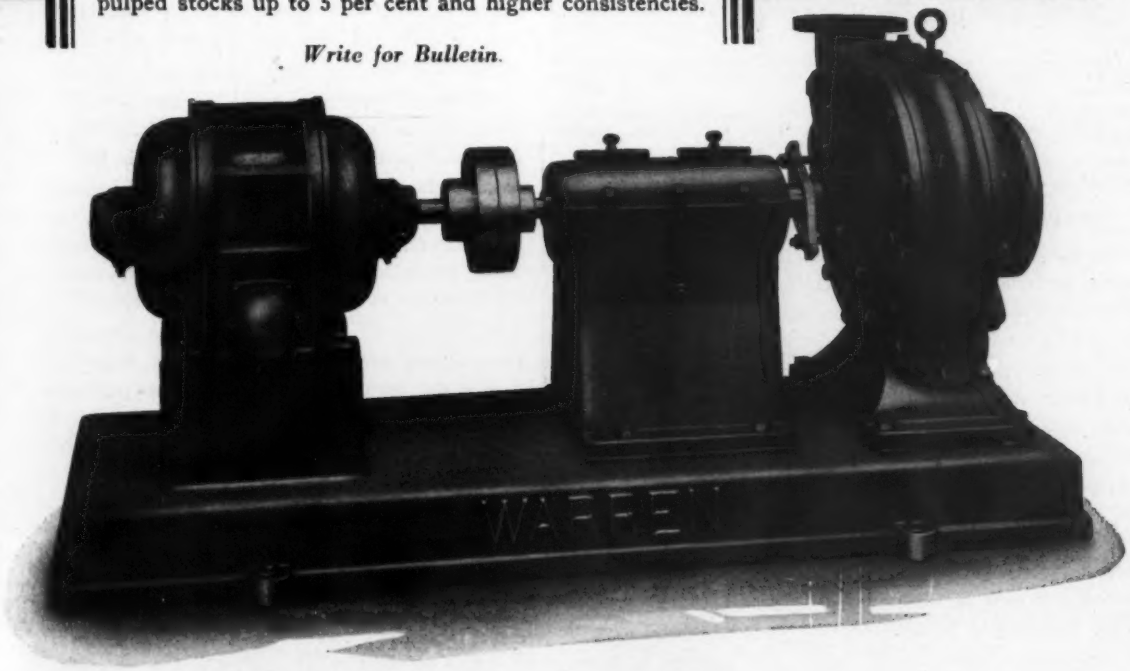
Several have tried but none have succeeded in duplicating the Warren Stuff Pump for efficiency and continuous dependability.

Take the Renewable Case Liners—an original Warren feature that assures close running clearance between impeller and casing and, consequently, high efficiency for the life of the pump.

And look at the massive single pedestal supporting both plain and thrust bearings. It assures perfect alignment.

These and other Warren design refinements plus Warren's twenty-nine years of specialized experience and unsurpassed construction and testing facilities make the Warren Stuff Pump the outstanding choice for handling pulped stocks up to 5 per cent and higher consistencies.

Write for Bulletin.



Warren

Steam Pump Company, Inc., Warren, Mass.

Boston Philadelphia Chicago New York St. Paul
Atlanta Scranton Toronto San Francisco Pittsburgh

57

PAPER TRADE JOURNAL
ESTABLISHED 1872
With Which Is Combined
PAPER
The Magazine of the Paper Industry
HENRY J. BERGER, Editor

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COMING EVENTS

Fiftieth Anniversary of the American Paper and Pulp Association, Convention and Meeting of Affiliated Associations, Waldorf-Astoria Hotel, February 21-24. Annual Banquet, Grand Ball Room, Thursday, February 24.

National Paper Trade Association of the United States, Convention, Waldorf-Astoria Hotel, February 21-23. Theatre Party, Imperial Theatre, Musical Comedy, "Oh, Kay"; Supper Dance, Hotel Astor Roof, Wednesday, February 23.

Technical Association of the Pulp and Paper Industry, Convention, Waldorf-Astoria Hotel, February 21-24. Annual Banquet, Hotel Commodore, Wednesday, February 23.

Salesmen's Association of the Paper Industry, Convention, Waldorf-Astoria Hotel, February 22. Annual Banquet and Dance, Roof Garden, Tuesday, February 22.

New York Association of Dealers in Paper Mill Supplies. Annual Banquet, Hotel Astor, Wednesday, February 23.

PAPER EXPORTS SHOW GOOD INCREASE

Exports of paper and paper products from the United States during December exceeded those during either of the two preceding months or during December, 1925, according to the Paper Division of the Department of Commerce.

While the volume of shipments of about half of the classes listed were not on a level with those of the previous month, these losses were more than offset by the heavy gains registered in a majority of the more important items. Proportionately the heaviest increases occurred in shipments of wall boards and boxes and cartons, which were 75 per cent higher, and of paper bags, which were 65 per cent higher than in November. Notable gains were also registered in exports of boxboard, which increased by 35 per cent, and in exports of writing and wrapping papers, which increased by 30 and 20 per cent, respectively, over the November shipments.

Exports of news print paper, which showed a steady downward trend during 1926, dropped to a new low level during December, when shipments totaled only 1,803,398 pounds, the smallest figure recorded for any one month during the past four years. A slight decrease is also observable in the December exports of book papers in comparison with the preceding month, although shipments remained somewhat above those of December, 1925. Exports of paper and strawboards, exclusive of boxboards, vulcanized fiber, and sheathing and building papers, were in all cases not only under those of the previous month but under those of the corresponding month in 1925.

The aggregate shipments of paper and paper products from the United States during December reached a total value of $2,328,963, exceeding the November shipments by 10 per cent and those of December, 1925, by 4 per cent.

Exports of paper base stocks during December were valued at $407,643 in comparison with $417,667 during the preceding month and with $389,998 during December, 1925. The largest items in these shipments consist of rags and similar stock, amounting to 9,127 tons, valued at $266,142, and of sulphite wood pulp, amounting to 1,792 tons valued at $112,913.

Imports of paper and paper products into the United States during December, which reached a total value of $12,710,148, were also slightly above those of the previous month, and exceeded the December, 1925, receipts in this line by more than 25 per cent. This rise in value was chiefly due to the increased receipts of standard news print, and to a less extent of other printing papers, tissue paper, and boxes. Imports of cigarette paper, which rank first in value among the minor imports, on the other hand, were 10 per cent under the amount received during November, and 30 per cent under those of December, 1925, while imports of pulp boards show decreases of 40 per cent and 30 per cent respectively in comparison with the same periods. Incoming shipments of writing papers, another important class among the minor imports, were somewhat larger than in November, but show a slight reduction in comparison with the corresponding month in 1925.

Imports of paper base stocks during December show an increase in value of 15 per cent over the preceding month and of 20 per cent over the corresponding month in 1925. This increase was due, however, to the heavy advance in imports of pulpwood and of sulphite pulp. Imports of ground wood, rags, waste, and similar stock, on the other hand underwent a further reduction during December. The total imports of pulpwood during December amounted to 76,217 cords valued at $781,439 in comparison with 69,265 cords valued at $754,091 in November, and 71,832 tons valued at $696,934 in December, 1925. Imports of other paper base stocks during December reached an aggregate of 170,248 tons valued at $10,221,859, an increase of 8 per cent over the preceding month and of 5 per cent over the corresponding month in 1925 in quantity, and of 20 per cent and of 14 per cent respectively in value. The largest items in the December, 1926, receipts comprised unbleached sulphite pulp, amounting to 71,631 tons, bleached sulphite, unbleached sulphate (kraft) pulp, and ground wood, amounting to 28,692 tons, 26,572 tons, and 20,139 tons, respectively, and rags amounting to 14,810 tons.

Imports of paper base stocks into the United States during the year 1926 were slightly higher than in the preceding year, aggregate receipts totaling $121,526,808 in comparison with $118,794,694 during 1925. Increased receipts of chemical pulp, together with a higher average value in most classes was responsible for the rise in value of these receipts. Imports of pulpwood and ground wood each fell off between 7 and 8 per cent, while rag receipts declined 17 per cent and waste of various sorts 12 per cent. In imports of ground wood and sulphite pulp an upward trend is discernible during the last half of the year. Receipts of pulpwood, unbleached sulphate, and waste stock, however, registered further declines during the last three months of 1926.

Imports of paper and paper products into the United States

during the year 1926 rose from $119,200,611 during 1925 to $139,537,144 during 1926. Nearly 90 per cent of these receipts consisted of standard news print, which during the same period rose in value from $103,717,055 to $123,981,715. The volume of receipts at the same time shows an increase from 1,293,237 tons to 1,652,389 tons, or approximately 30 per cent. Imports of other papers and paper products during the past year were about on a level with 1925, reductions in incoming shipments of other classes of printing paper, wrapping paper, pulp boards, hanging paper, cigarette paper, and boxes, being offset by increased receipts of writing, surface-coated, tissue, and decalcomania papers.

Canada as heretofore was the most important source of supply for both paper base stocks, news print paper, and pulp boards. Other leading competitors in this field were Sweden, which supplies over one-third of the receipts of chemical pulp and the bulk of the kraft and other wrapping papers; and Germany, France, Belgium, and the United Kingdom, which were leading suppliers of greaseproof, writing, surface-coated, and tissue papers.

Court Finds for Arnold, Hoffman & Co.

[FROM OUR REGULAR CORRESPONDENT]

PROVIDENCE, R. I., February 8, 1927.—In an opinion handed down today in the seven-year litigation between the Mathieson Alkali Works of New York and Virginia and Arnold, Hoffman & Co., Inc., Providence, United States District Judge Arthur L. Brown holds that the Mathieson Alkali Works was not justified in repudiating a contract to employ the local concern as its selling agent for three years, beginning January 1, 1920, which repudiation Arnold, Hoffman & Co., Inc., claims injured them to the extent of $900,000.

Judge Brown on this point reversed the finding of Special Master in Chancery James H. Higgins, but sustained the special master in almost all other respects in the master's final report.

It was learned this afternoon that the Mathieson company intends to appeal the case to the United States Circuit Court of Appeals.

In two equity cases brought by the Mathieson Alkali Works against John R. Gladding, who was its treasurer, and several members of the board of directors of the firm, Judge Brown finds for Mr. Gladding. In two equity cases brought by the Mathieson Alkali Works against Arnold, Hoffman & Co., the opinion finds that the Mathieson Alkali Works is entitled to recover on several transactions, but sustains the defenses of Arnold, Hoffman & Co. as to most matters complained of in these two cases by the Mathieson Alkali Works.

Approves Bond of New Peshtigo Receiver

[FROM OUR REGULAR CORRESPONDENT]

PESHTIGO, Wis., February 14, 1927.—On February 5, 1927, Circuit Court Judge Quinlan, Marinette, Wis., approved the $50,000 bond of P. M. Allen as new receiver of the Peshtigo Paper Company. Mr. Allen replaces John D. Bird, president of the American National Bank, Milwaukee Wis., who resigned. Mr. Allen severed his connections with the Detroit Sulphite Pulp and Paper Company, Detroit, Mich., to assume this responsibility with the understanding that necessary changes and expenditures would be made to bring the quality of the mill's product to the high state of perfection demanded by the paper industry.

After leaving college Mr. Allen was connected with the large chemical manufacturing plant of the Solvay Process Company, Detroit, Mich. In a few years he became associated with the paper industry, starting at the bottom and going through the various departments. Based on this broad, general knowledge of paper, he was selected by Judge Quinlan to assume the important responsibility of a receivership.

Three Leading Foresters To Make Addresses

Forestry, the subject of fundamental importance to the whole paper and pulp industry, will be discussed during the fiftieth Annual Convention of the American Paper and Pulp Association at the Waldorf Astoria, February 23, by three men who have made names for themselves in this profession. This triumvirate, Raphael Zon, Samuel T. Dana, and E. H. Frothingham, have been vital factors in the rapid development of their profession during recent years. They have done much to bring home to the public and to the industries dependent on timber, that only constructive care and development of our forest lands will save us from disaster before the century has elapsed.

The three foresters chosen to address the convention are all high in the United States Service, being directors of the most important forest experiment stations established by the government for the study and conservation of our woodlands. Raphael Zon, considered one of the great figures in American forestry, directs operations in the Lake States Forest Experiment Station; Samuel T. Dana, president of the Society of American Foresters, directs the work of the Northeastern Forest Experiment Station; and E. H. Frothingham is head of the Appalachian Forest Experiment Station.

Connecticut Valley Superintendents To Meet

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., February 15, 1927.—A joint meeting of the Connecticut Valley Division of the Paper Mill Superintendents Association and the Conn. Valley Club of Printing House Craftsmen will be held at the Hotel Nonotuck, Holyoke, March 5, opening at 9 a. m. There will be registration the first hour and a business session at 10 at which the problem of the printer will be discussed in full. Printers having trouble with their papers, coated or uncoated, are cordially invited to send samples to John J. White of Holyoke, sending sample showing stock unprinted, also stock after printing, both of large size.

Experience of many years, says the invitation, is to the effect that the papermaker is just as anxious to deliver a product that will be perfect as the printer is to have the product. There will also be present executives, sales managers, chemists and others of service.

The speaker will be John J. Deviny, International President of craftsmen's clubs of Washington who will describe how money is made. Ladies are included in the invitation, and desired, as there is to be dancing after the dinner at 6.30 and the speaking, starting at 9. John J. White is chairman of the Publicity Committee.

J. S. Begley Receiver for Mars Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., February 15, 1927.—Attorney John S. Begley of this city has been appointed receiver of the Mars Paper Corporation of Westfield by Judge Broadhurst to conserve the assets of the company and assure continuous operation. The Westfield concern is solvent but the parent company, the Maurice O'Meara Paper Company of New York, is now in the hands of a receiver.

The Mars company has assets far in excess of its liabilities. It is believed that the concern will now be able to carry on without interruption, having many orders on its books and every indication of a prosperous year.

Alling & Cory Buy Kingsley Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

PITTSBURGH, Pa., February 14, 1927.—The Kingsley Paper Company of Cleveland, Ohio, has been purchased by The Alling & Cory Company and the latter company is taking over the business March 1. At the present time the Alling & Cory Company maintains large houses in Rochester, Buffalo, Pittsburgh, and New York City. The purchase of the Kingsley Paper Company provides an important addition to its present Divisions.

THE KALBFLEISCH CORPORATION

Announces

THE OPENING OF ITS SEVENTH PLANT

at

DeQuincy, Louisiana

for the purpose of manufacturing ROSIN SIZE particularly to serve the paper mills of the South and West

AT our other six plants, favorably located, we serve paper mills in the other parts of the country. These plants manufacture dependable paper making chemicals.

The sales for this Southern plant will be handled by **Aubrey Bartlett, 777 LaSalle Street, New Orleans, La.**

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FACTORIES:

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Section of the
Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Conducted by W.G.MacNAUGHTON, Secretary

New Method of Testing Paper

Method of Testing and Recording Physical Properties of Paper and Description of Machine Invented by Prof. A. Retjö

By Joseph G. Bercsi *

Intensity of present-day competition makes it necessary to maintain high standards of quality if paper products are to satisfy the buying public. The volume and continuity of demand experienced by certain mills bear a direct relation to the quality of the goods offered for sale; and these are not dependent merely on selling devices and external qualities of a trivial character. In order to maintain durability of product it is important to conduct regular examinations at intervals. In the accompanying article attention will be given to strength and durability as being of chief importance from the buyer's viewpoint, with an analysis of the tests necessary for determining durability.

The durability of paper may be said to be dependent on two factors—quality of raw material and character of the manufacturing process. As the best material is apt to be spoiled if treated improperly during manufacture, it is important that the product should be kept under continuous observation at all stages of the process.

Tests of paper were conducted in this way at the testing laboratory of the Königliche Ungarische Josef-Technische Hochschule by Prof. Alexander Rejtö, who held the chair of Mechanical Technology at that college where the writer was his assistant for four years (1920-1924) and took part in the investigations leading to the use of the testing instrument which is about to be described.

As is well known, the usefulness of a paper depends mostly on its breaking resistance or bursting strength and its tensile or tearing strength, as evidenced by its qualities of extension or elongation and pliability. There are other factors to be taken into account, chemical durability, for example, but these will not be considered here, as the aim is to produce a geometrical and mathematical representation of the first-named factors of durability as determined by physical tests through the use of the machine invented by Professor Rejtö. Experiments on metals in Professor Rejtö's laboratory proved conclusively that a variety of mechanical tests, as pressing, bending, wearing, etc., could be replaced by the pulling or tensile test, if the proper formula were used for calculating the particular end desired. Working formulas for these operations were established by Professor Rejtö and applied to all materials equally, paper products being among the substances tested.

Rejtö's hypothesis is that the wearing quality of a paper is related to its breaking resistance or amount of work put in the stretch test. This work applied to the square unit of paper determines its "hold," and applied to the weight unit gives a measure of its "quality."

Physical Testing of Paper

In order to test paper systematically, it is necessary to determine its breaking strain, tensile strength and tearing resistance by breaking paper samples and preparing proper diagrams. To produce the diagram the machine must be fitted with a recording apparatus so that the elongation and power can be charted without error and the scale of power be uniform. The diagram area must be sufficiently large to obviate any possible error in figuring values. To exert the right degree of stress, the wheel of the machine must be turned at a uniform rate of speed, say 0.11 to 0.15 mm. per second, and with an electric motor.

The generality of paper-testing machines break strips of paper of a width of 15 to 20 mm. only. Tests have shown, however, that an increase in width to 100 mm. does not interfere with the elongation test. Pieces of paper 100 mm. wide are more easily caught or nipped in the machine and, in order that the diagram may be figured more exactly, the apparatus is made capable of drawing the elongation twice as long as really necessary; all tests were, therefore, made with papers 100 mm. wide and 100 mm. long.

The Rejtö paper-testing machine is shown in Figs. 1 and 1a. In operating it the paper to be tested is placed between the leather-covered jaws (A) and (B), (A) being connected with spring (R), and (B) with the screw (D). The most important part of this machine is the spring (R). Jaws (A) and (B) are led by lathes (G) and (G_1). As the resistance of the paper is transmitted from (A) to spring (R), the friction of (A) is reduced by traveling on wheels (C) connected with a bearing. The friction of pressure on the bearing is the only possible factor of variation in registering the true resistance. Friction of (B) is overcome by pulling on screw (D) running on the leading lathe (G_1). Uniformity of pull is assured by the motion of a leather or thread disk attached to a nut moved uniformly by electric motor as shown in Fig. 1. In this illustration, the leather disk is shown at (K_1), nut (h_1) and (h_2), eccentric arm (h_4) serving to attach and dismount the nut. If no electric motor is available, the disk can be operated by working a hand crank with careful and uniform motion.

The form of the spring measuring the resistance is shown in

*Westinghouse Electric & Mfg. Co., Sharon Works, Sharon, Pa.

Fig. 1a. On the exertion of force, this spring lies flatter in the direction of width. But these changes in measurement are not proportional to the line registering the size of power. For convenience, it is essential to have it that way, as the pencil of the drawing apparatus draws the power in the direction of ordinate. Therefore we attach arm (a_1) of the spring as shown in Fig. 2 to the plate (p) holding drawing apparatus with the aid of screw (b), then to the end of (a_2) we attach toucher (c) running in the straight line of plate (p). This toucher (c) as soon as (a_2) is nearing (a_1), runs from left to right and turns shaft (f) with the aid of eccentric (e); shaft (f) is mounted on plate (p). In order to force shaft (f) to the desired motion, bar (c) and eccentric (e) on one end are connected with the steel band (d), and on the other side with spiral spring (r).

We have to form the shape of eccentric (e) by grinding, so that it will—on turning of shaft (f)—represent the proportion of strength. The turning of shaft (f) is transmitted through segment (g) to the drawing apparatus in larger scale, and directly to arm (m_1), holding the drawing point, which forms the center line of the parallelogram (m_1), (m_2) and (m_3). Each movement of shaft (f) is transmitted to arm (m_1) with the aid of segment (g) and steel hand (h), transmitting it to bar (i) touching bar (l). This parallelogram arm (m_1) with the pencil at its end, draws a straight line on the paper cylinder (n). The height of this line depends on the thickness of the arm of the spring. The weaker the spring required, the finer must the arm be ground.

When pressure is applied, spring (R) expands lengthwise; and because it is directly connected with gripper (A), it also influences the expansion of the paper. The expansion of the paper sample is transmitted to the drawing apparatus by connecting the fastener of gripper (B) with the steel wire wound on paper cylinder (n) as shown in Fig. 1. Due to this connection, the expansion of the spring (R) would expand the paper too. To overcome this, we fix the shaft of the paper cylinder not directly perpendicular to the main shaft running lengthwise of the machine, but obliquely just enough to enable the pencil to draw a constructive line when

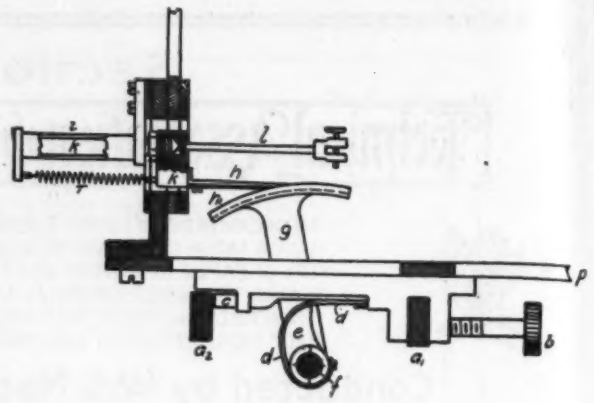


FIG. 2

The main parts of diagram-drawing apparatus.

(A) and (B) are rigidly fixed to each other—that is to say, when the sample under test does not expand any more. In this case the line drawn by the pencil is perpendicular to the base line drawn by a simple turning of the cylinder, when the spring is unloaded.

The Samples

The specially cut samples (P) are fed into the machine in the following manner: We place plate (L) between the grippers—width of (L) is 100 mm.—and bring the grippers toward each other until they touch plate (I). Then we lift screws (F) and place the paper over (L), taking care that it is gripped on a straight line.

After breaking the paper, we get a diagram, Fig. 3, in which the ordinate represents the force used and the abscissa the expansion of the paper.

The desired size of diagram may be positively provided if three

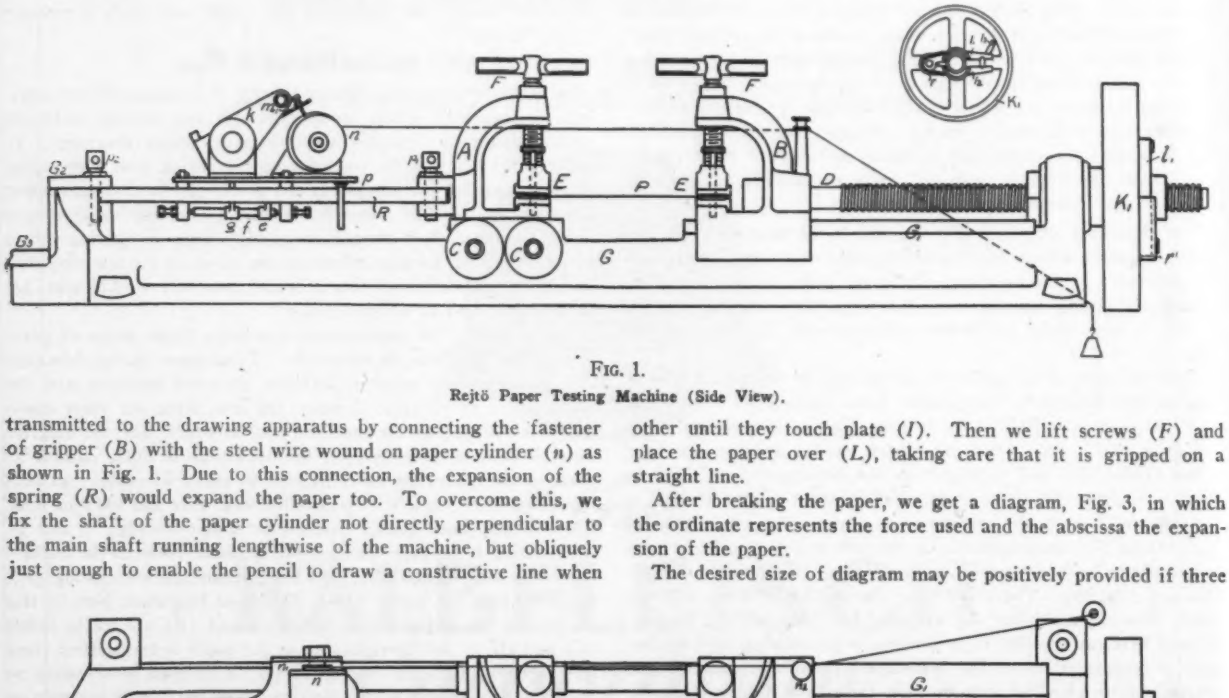


FIG. 1.

Rejtö Paper Testing Machine (Side View).

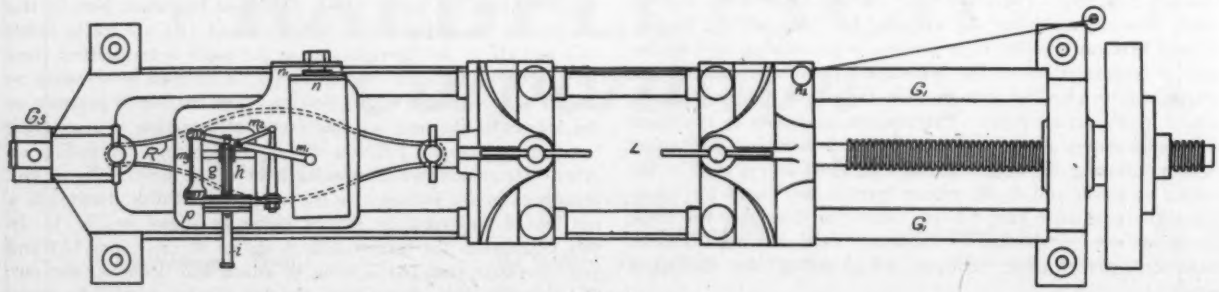


FIG. 1a

Rejtö Paper Testing Machine (Plan View).

kinds of springs (R) are used, of which 1 mm. = ½, 1 and 2 kg., respectively. In testing we invariably use the spring which gives a diagram 25 to 30 mm. high. In changing springs the pins (p_1) and (p_2) are withdrawn and the diagram-drawing apparatus dismantled. The screw (b) is then loosened and the spring withdrawn and replaced by another one. In the meantime we must see that the toucher (c) rests on arm (a_3).

Before using the machine the steel bands (d) and (h) should be examined carefully to see that they are in good condition, for if they are injured in any way the machine will be useless. Injury may be inflicted in changing the spring, if special care is not used. We must regard the starting position of the pencil. If this is uncertain, the spring (R) will be subjected to strain.

The mechanical testing of paper starts with the cutting and weighing of it. Because we need at both ends 25 mm. for gripping the paper, its length must be 150 mm. and the width 100 mm. From the various papers we take at least three samples from the machine direction and three from cross direction. But if the difference between the area of the diagrams is greater than 50 per cent, the testing is to be repeated with six new pieces.

In order to cut the pieces to be tested quickly and accurately, it is best to use the cutting machine shown in Fig. 4. To the table of this machine are fastened three lathes parallel with the edge of the machine. Of these (D) is 100 mm., (C) is 150, and (B) is 315 mm. distant from the edge. Before starting to test the paper, lines are made on it with a soft pencil in the machine direction of the paper. Now we put the longitudinal edge of paper to the lathe (C) and cut a piece 150 mm. wide, then we cut two pieces 100 mm. wide, using lathe (D). In this way we get one piece 150 mm. wide and two pieces 100 mm. wide. These are again divided. For this purpose we put the 100 mm. wide paper pieces in cross direction to the lathe (C) and cut three pieces each 150 mm. long. In the same way from the 150 mm. wide pieces we can cut three papers 100 mm. in length using lathe (D). Besides these six pieces (three lengthwise and three in the cross direction) we cut one to measure 100 x 100 mm., because with this the six already provided will give an area of 0.1 m.^{2} In the same way we can divide the pieces if it is desired to break a 4 x 4 inch = 16 square inch paper. In this way a shape 6 x 4 inch = 24 square inch, three can be cut from both directions. If it is desired to weigh the paper independently from cutting out, we use lathe (B) which is 315 mm. from the edge and make a square which gives us 0.1 m.^{2} Weighing the paper in one way, the weight of 1 m.^{2} in kg., or that of 1 square foot in pounds gives the weight of paper.

For mechanical testing we cannot use parts of paper that are injured, crumpled or that contain traces of printing. Therefore it is not permitted to send paper to the laboratory in roll form; the samples must be laid flat between two thick papers. If the paper is long, it can be folded to 10 x 15 inches in size.

Printed papers may be tested only if pieces can be cut out that contain no printing and which are large enough for testing. Otherwise we can only see how well the paper has been printed, and not what the quality of the paper is.

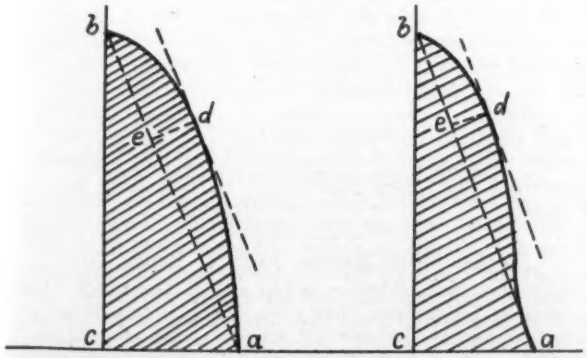


FIG. 3
Division of the diagrams into parts.

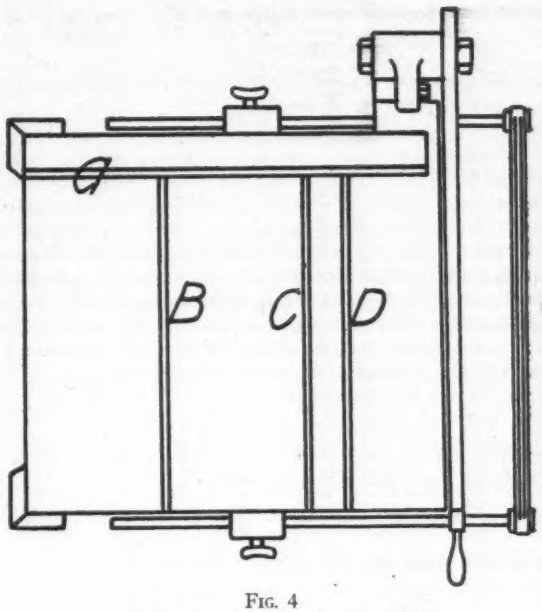


FIG. 4
Machine for cutting the paper samples.

Conditioning Necessary

The weighing and breaking of paper may be done only if the atmospheric conditions are right. The tenacity of cellulose depends upon the moisture taken up by the fibers. On this account the papers to be tested should be kept at least eight to ten hours in a room where the humidity of the air is 65 per cent and the temperature 68 degrees F. (20 degrees C.). Because it is not easy to maintain this humidity and temperature and seeing that 5 per cent variation in these values does not make any great difference—an increase of humidity decreases the strength and increases the expansion—conditions are therefore suitable if the humidity is 65 ± 5 per cent and the temperature 65 ± 5 degrees F.

Paper that has been kept eight to ten hours in a room under proper conditions such as those mentioned can be weighed and tested.

After making the paper secure we put a diagram paper at the cylinder (n) and draw the basis line. After that the wire, which is connected with the cylinder is fastened by the screw (n_3), and the machine started. The six diagrams may be drawn on the same diagram paper, but we must see to it that the diagrams lie side by side and not one on top of the other. From these diagrams (*see* Fig. 3) on which the ordinate represents the force and the abscissa the elongation, the quality of the paper may be figured as follows:

Calculation of Quality

If, for example, the measurements of the tested sample are 0.5 x 0.5 ft. and the scale of the spring (p), ordinate (cb) measured in inches is (x), then the breaking strain figured to a width of paper of one foot, is

(1) $$P_{\text{lb.}} = 2xp \text{ lb./ft.}$$

If the distance (ac) measured in inches equals (y) and the scale of elongation is (e) (in most cases $e = 2$), then the elongation expressed in per cent is:

(2) $$E\% = \frac{y}{e} \frac{100}{l}$$

where (l) is the length of the torn paper.

If the surface of the diagram in square inches equals (t), then the work of the tested material (0.25 sq. ft.) is:

(3) $$W_{\text{ft. lb.}} = t \frac{p}{e}$$

TAPPI SECTION, PAGE 70.

From this the durability of one square foot of paper is:

$$(4) \qquad {}^{H}_{\text{ft. lb./sq. ft.}} = t \frac{p.}{e} \frac{1}{.25} = 4 \frac{p}{e} t$$

From this comes the quality of the paper, where the weight of one square foot of paper is (w) in lb.:

$$(5) \qquad {}^{G}_{\text{lb. ft./lb.}} = \frac{H}{w} = \frac{4}{w.} t \frac{p}{e}$$

In most cases $p = 10$ and $e = 2$, thus the formula of endurance or hold:

$$(4a) \qquad {}^{H}_{\text{lb. ft./sq. ft.}} = 20\, t$$

The area of diagram (t) may be determined with the planimeter or we may determine at once the hold by the use of a special scale. The surface of the diagram can be divided (*see* Fig. 3) into two parts with line (ab). If we suppose now for simplicity that ($aebd$) is a parabola, then the shaded surface can be expressed as the sum of (abc) triangle and ($aebd$) parabola, viz.:

$$(6) \qquad t = \frac{\overline{ac}.\ \overline{cb}}{2} + \frac{2}{3}\ \overline{ab}.\ \overline{ed}$$

In order to calculate the values of the work we have to introduce the scale of force and expansion also.

$$(3a) \qquad {}^{W}_{\text{ft. lb.}} = \frac{(\overline{ac}.\ \overline{cb}}{2} + \frac{2}{3}\ \overline{ab}.\ \overline{ed})\ \frac{p}{e}$$

Now if we suppose that $p = 10$ and $e = 2$, then

$$(3b) \qquad {}^{W}_{\text{ft. lb.}} = \frac{5\ \overline{ac}.\ \overline{cb}}{2} + \frac{10.\ \overline{ab}.\ \overline{ed}}{3}$$

The hold can be figured from this by multiplying the result by 1/0.25, therefore

$$(4b) \qquad {}^{H}_{\text{ft. lb./sq. ft.}} = 10.\ \overline{ac}.\ \overline{cb} + \frac{40\ \overline{ab}.\ \overline{ed}}{3}$$

which can be expressed as follows:

$$(4c) \qquad {}^{H}_{\text{ft. lb./sq. ft.}} = 5\ \overline{ac}.\ 2\ \overline{cb} + 10\ \overline{ab}.\ \frac{4}{3}\ \overline{ed}.$$

This shows, if we prepare a triangular-shaped ruler (*see* Figs. 5 and 6), one part of which is separated into ½-inch divisions for measuring the height of the triangle (cb) and the other divided into 1/5 inches for measuring the base line of the triangle (ac). One part on the other side may be divided into 1/10 inches for measuring the base line of parabola (ab) and the other part into ¾ inches for measuring their height. If we now call $5\overline{ac} = a$, $2\overline{cb} = b$, $10\overline{ab} = c$ and $4/3\overline{ed} = d$, then from these data we can obtain the durability of the paper:

$$(4d) \qquad {}^{H}_{\text{ft. lb./sq. ft.}} = a.\ b. + c.\ d.$$

The ruler referred to is constructed so that its triangular part (marked with a small triangle) at once enables us to read the measurements of the triangle and its curved lines adapt themselves to the parabola (this part is marked with a small parabola). Thus with the simple reading of linear measurements we can determine the strength of the paper.

It is understood, of course, that the different measurements

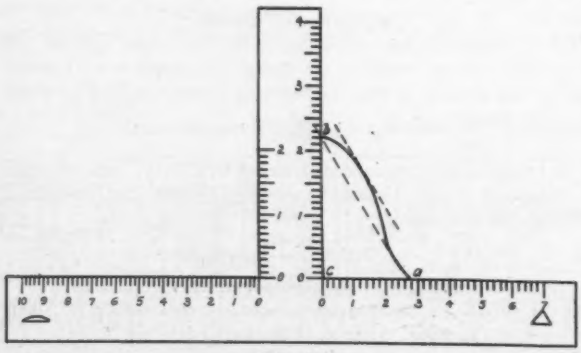


FIG. 5

Diagram showing measuring of length of sides of triangle.

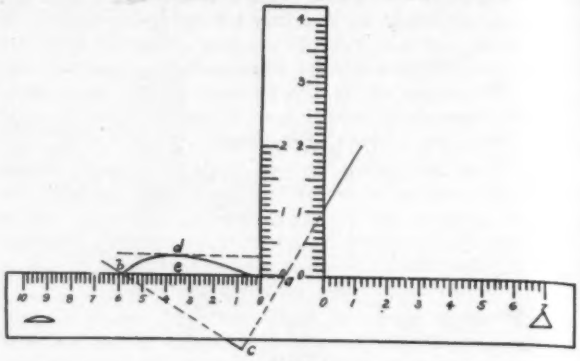


FIG. 6

Diagram showing measuring of the chord of the parabola.

determined by the spring require different kinds of rulers and that different kinds are also needed when the expansion differs from the usual $e = 2$. This, however, is easily figured by simple division of the items by 2, 3, etc., according to the multiples of elongation.

In using the rulers, the procedure is as follows: For measuring the sides of a triangle, the right-hand side of ruler will be put to the diagram as shown in Fig. 5. Now the values (ac) and (bc) will be read off and then multiplied. After that the ruler will be put to the diagram as shown in Fig. 6 and values (ed) and (ab) will be read off. If we multiply these values and add to the first mentioned we will get the pliability.

If the difference of hold in each direction is less than 50 per cent, the average of the six results will give the pliability of the paper.

If we divide this pliability figure by the weight of the paper (in lb./sq. ft.) we will get the quality.

Because the quality may vary with the same kind of paper, this cannot be characterized with one value, but consistent with this inequality low and high limits were determined for the quality. These are collected in the accompanying table.

Class of Quality	I	II	IIIa	IIIb	IVa	IVb	Va	Vb	VIa	VIb	VIIa	VIIb	VIII	IX	X
G mkg./kg.	300	200	135	112	90	78	60	50	40	31	27	21	17	11	7
	201	136	113	91	79	61	51	41	32	28	22	18	12	8	5
G ft.16/16	1,000	653	445	370	306	260	200	164	134	104	89	70	56	38	25
	651	446	371	301	261	201	165	135	105	90	72	59	39	26	16.5

This table cannot be used in the following three cases:

1—If the paper contains more than 3 per cent wood pulp, as on account of its wood pulp content it then belongs in the class VIb; if the paper is poorer, it belongs in a lower class.

2—If the paper contains more than 3 per cent unbleached cellulose and gives a lignin reaction, it belongs on this account to class Vb; if the paper is poorer, it belongs in a lower class.

3—If the paper is poorer than class IV but shows a weaker lignin reaction than 1 per cent, or the paper is better than class IV, though the lignin content is less than 0.5 per cent it retains its class but its lignin content should be recorded.

With the aid of these tests we can express the quality or characteristics of paper in numbers, compare them in an equal manner and select the one to be most desired accordingly. This is very important in quantity shipments. In most of the European States the mechanical qualities of papers are prescribed according to certain standards and when shipments are received, they are promptly examined to see if they meet the standard requirements.

Reference.—Mechanical Technology (in Hungarian), by Prof. A. Rejtö.

To Go With Rainier Pulp & Paper Co.

GREEN BAY, Wis., February 7, 1927.—D. B. Davis, general superintendent for the past three years of the Hoberg Paper and Fibre Company, has resigned this position to take effect March 1. Mr. Davis will go to the Pacific Coast to be superintendent of the Rainier Pulp and Paper Company, Shelton, Wash.

The Story of Pine Waste

By F. E. Greenwood

(Concluded from last week.)

PART III

The one central thought around which the laboratory research has revolved is the fact that southern pine material is superior to other paper making woods. That makes these woods the most valuable of all for the manufacture of paper pulp from the standpoint of character of fiber. Unfortunately from the paper makers' standpoint these woods contain excessive amounts of resins, which are very troublesome to the pulp maker when too abundant. These resins are, however, valuable products, and at the present time are being obtained from southern pine waste in ever increasing amounts. The total market value of the resins is below that of the cellulose fiber. Therefore, any project for the utilization of waste southern pine should be based upon the preparation of cellulose fiber as its main object.

It is important that this viewpoint is kept constantly in mind in reviewing the work done by our laboratory, and the patents growing out of it. For, whereas other inventors have sought primarily a means for extracting the largest possible yield of oils and resins from the wood, and have spoiled the fiber in their efforts to accomplished this, it has been our aim to obtain the largest possible yield and best quality of pulp, together with such oleoresinous byproducts as can be secured by methods consistent with this main object. Therefore, the first essential difference between our process and all others in use or proposed, is in the size of the chip. Instead of "finely comminuted wood," a term almost invariably used by applicants for patents on extractive methods, experience has shown that chips ranging in size from that which will be caught on a 3/32-inch wire mesh to that which will pass a 7/16-inch wire mesh will not only extract well but are not too small for high grade pulp. Either extraction efficiency or quality and yield of pulp must give way, and as the pulp is the more valuable we prefer to sacrifice something of the rosin yield.

Starting then with a standard size pulp mill chip, we propose to apply a solvent in such a manner as to remove a part but not all of the resins. The reason for not removing all of the resins is three-fold:

1—Because complete extraction is too expensive
2—Because partial extraction gives a better quality of rosin
3—Because the residual unextracted resin is of advantage in the the manufacture of pulp.

These three ideas are set forth in Jos. H. Wallace's U. S. patent, No. 1,560,447, issued November 3, 1925. In this patent it is set forth that the extraction of the resins takes place rapidly until a large portion of the resinous material has been removed. After this the rate of extraction declines rapidly. Represented graphically, a typical example shows that the rate of extraction curve rises sharply at first until say two-thirds of the resins have been removed, and then rapidly approaches the horizontal. In this respect it follows the well known economic law of diminishing returns.

The fact that the rosin extracted during the period of least resistance is of better quality than that which is more difficult to obtain, is explained by a consideration of the nature of the resins contained in the kind of material under consideration. During the time the stumps and lightwood have weathered in the field, the resins which they contain have undergone alteration. A part of the crystalloidal abietic acid, of which the gum rosin from the living tree mainly consists, has been converted into products of colloidal nature, whose exact character is as yet imperfectly understood.

Now it is well known that crystalloidas dissolve and diffuse through a semi-permeable membrane under the influence of osmosis more readily than do colloids. Hence it is perfectly natural that the rosin extracted during the period of least resistance should consist almost entirely of the crystalloidal abietic acid, of which the best quality rosin is mainly composed.

That the residual unextracted resin is of advantage in the manufacture of pulp is due to three facts. In the first place the resin appears to facilitate the cooking operation by the sulphate process. Just why this is so is not yet understood. Therefore we must content ourselves with calling its effect catalytic. In the second place, the residual resin supplies additional fuel for the recovery plant, in which the alkali used to disintegrate the wood is made available for reuse. And in the third place, if a certain amount of resin can be retained by the fibers the pulp made will be stronger. This has been demonstrated by Dr. Carl G. Schwalbe of Darmstadt, Germany, recognized as one of the foremost authorities on the chemistry of cellulose.

By this partial extraction of the resins there is produced not only a superior quality of rosin, but also a superior quality of chip. If the untreated wood is cut into chips and cooked by the sulphate process, it is found that some of the chips are completely disintegrated while others are but little attacked. This is because some of the chips contain very little resin and are readily penetrated by the liquor; while others are so filled with resin that they are but slightly attacked. The partial extraction, however, equalizes the resin content to a large degree. Chips that were highly resinous have had their resin content reduced to a moderate amount. Similarly, chips that were lean have taken up the same moderate amount of resin. There has thus been produced a standardized chip having a uniform resin content. The moisture content may also be standardized by drying.

Such chips when cooked by the sulphate process give a uniform quality of pulp, with no loss due to uncooked chips. This idea of a standardized chip is the subject of Jos. H. Wallace's U. S. patent No. 1,560,448, issued November 3, 1925.

This, it may be seen, covers the chip with part of the extractives removed, with the remaining resinous matter more evenly distributed and with the moisture content thereof uniform. It also covers a bale of such chips.

Another patent of Mr. Wallace covers the complete process of partially extracting the chip and making the latter into pulp. This U. S. patent bears the No. 1,560,446, issued November 3, 1925. It is designed to protect the use of the standardized chip, as well as its preparation. Its claims are drawn broadly to cover not only the partial extraction with a volatile solvent, but further disintegrating the wood with a heated alkaline solution and recovering the residual resinous matters from the spent alkaline solution.

After the partially extracted standardized chips have been cooked to pulp by the sulphate process, there is an opportunity to recover as much of the residual resin as may not be needed for fuel. For this purpose we must begin with the crude rosin soap which separates in the form of scum when the black liquor drained from the pulp is allowed to cool. Upon acidifying this scum with an acid or with a solution of niter cake, a crude resin cake is obtained. This product contains the resins together with other organic acids dissolved out of the wood. It is a black sticky mass which in Europe finds a ready market as a material for soap manufacture or for distillation to produce lubricating oils. But in this country other materials for these purposes are so abundant and cheap that such a low grade product has not found a market.

We have succeeded in producing from this sticky low grade

resin cake a good quality of hard rosin by a process involving fractional crystallization. The fact that this could be done was of value in proving that the cooking operation had not decomposed the resin. But methods are of practical application only in cases of products of high value, such as radium, and are not commercially possible in the case of resin.

A method of dealing with this crude resin cake has been developed in our laboratory. It depends on a combination of immiscible solvents. It was found that gasolene could be emulsified with the scum, and that when acid was added the liquid separated into two layers, the upper being the gasolene resin extract. This extract, when treated with alcohol gave up a part of its resin content. Distillation of these solutions separately gave rosins of good quality. That from the gasolene was lighter in color but softer than that from the alcohol. This process has been made the subject of a patent by F. E. Greenwood, U. S. No. 1,560,420, issued November 3, 1925.

The other method of extracting rosin may be applied to the chips as well as to the crude resin cake. It consists in saponifying the rosin with aqua ammonia, drawing off the ammonia extract and agitating it with a rosin solvent immiscible with water. The second solvent, which may be turpentine, removes the resin from its combination with the ammonia. The exact moment when the transition takes place can be recognized by a difference in the sound of splashing of the liquids. The sound changes from that of a soft splash like oil or soapsuds, to that of a hard splash like water. The change is analogous to that which occurs when butter separates from cream in the old-fashioned dasher churn. The liquids separate quickly on standing, and the rosin extract layer can be drawn off and distilled. This method produces a rosin of superior quality. It has been made the subject of a patent by F. E. Greenwood, U. S. No. 1,511,461, issued October 14, 1924.

A third method of extracting rosin and the products thereof from pulp mill black liquor, known as the "Steam Distillation" case, is set forth in a patent by F. E. Greenwood, U. S. No. 1,593,656, issued July 27, 1926, and consists of separating the rosin soap from the pulp mill black liquor, treating this soap with a solvent and an acid, then treating the resultant solution with a second solvent immiscible with the first, separating the solutions, evaporating the solvent from the second solution, and subjecting the residue from the second solution to dissolution in the presence of superheated steam.

The vapors of distillation are subjected to condensation in successive stages and a variety of products are received in the form of rosin oils and rosin.

Many other notable improvements besides those above mentioned as the main issues now in question, have been developed in the research in this field during the last six years at the laboratory, such for example as production of a remarkably easy bleaching pulp by means of the removal of coloring matter before bleaching; the production of cellulose material particularly suitable for nitrating, etc.

We are convinced that paper to be made from our so-called "standardized chip" will be of far greater strength and uniformity than has ever been obtained from the unsatisfactory and varying character of natural chips available from any known paper making woods up to the present time.

The treatment we propose in preliminary extraction of naval stores from pulp chips employs temperature, pressure and time that is only a fraction of that required by the actual pulping operation itself; and where it is obvious that by such treatment we cannot harm the cellulose, we have proven that we have materially improved its character as a raw material for paper making purposes. The time of cooking is reduced; the amount of chemicals to be used is reduced; and as the chip has become more uniform in character, so the cooking of the various chips is more uniform, and the resultant average strength of fibre is materially increased.

APPENDIX A

Estimated Heating Value of Spent Chips from Extraction Plant on Southern Pine Stumps having a residual rosin content of 5 per cent.

H. S. Betts and E. Bateman, 1913, U. S. Forest Service on Fuel Value of Wood, give the fuel value of rosin as 9400 calories per kilogram, or 16920 B.t.u. per pound.

Nelson Courtland Brown in Forest Products—the Manufacture and Use, John Wiley & Sons 1919, gives the average heating value of dry wood to be 4600 calories per kilogram of 8280 B. t. u. per pound.

(Gottlieb) gives composition and calorific value of various dry woods as follows:

Kind of wood	Carbon C %	Hydrogen H %	Nitrogen N %	Oxygen O %	Ash %	Calorific value B.t.u. per pound
Oak	50.16	6.02	0.09	43.36	0.37	8316
Ash	49.18	6.27	0.07	43.91	0.57	8480
Elm	48.99	6.20	0.06	44.25	0.50	8510
Beech	49.06	6.11	0.09	44.17	0.57	8591
Birch	48.88	6.06	0.10	44.67	0.29	8586
Fir	50.36	5.92	0.05	43.39	0.28	9063
Pine	50.31	6.20	0.04	43.08	0.37	9153
Poplar	49.37	6.21	0.96	41.60	1.86	7834
Willow	49.96	5.96	0.96	39.36	3.37	7926
Average ..	49.58	6.11	0.27	43.11	0.91	8495

Dulong's Formula for the calculation of heat value from the chemical composition gives for the above average composition the following:

$$h = 14600\ C + 62000\ (H - \frac{O}{8})$$

$$= (14600 \times 0.4958) + 62000\ (0.0611 - \frac{0.4311}{8})$$

$$= 7238.7 + 446.4$$

$$= 7685 \text{ B.t.u. per pound (b. d.)}$$

Using the average chemical composition above, as representing the fixed composition of spent wood and adding a 5 per cent rosin content whose heat value is taken at 16920 B. t. u. per pound we get proportionate parts of contents in dry fuel

C	=	49.58 × 0.95	= 47.10
H	=	6.11 × 0.95	= 5.80
N	=	0.27 × 0.95	= 0.26
O	=	43.11 × 0.95	= 40.95
Ash	=	0.91 × 0.95	= 0.86
R	=	Rosin	5.03
			100.00

DuLong's Formula then becomes

$$H = \left[14600\ C + 62000\ (H + \frac{O}{8})\right] + 16920R$$

$$\text{and } h = \left[14600 \times 0.471 + 62000\ (0.058 - \frac{0.4095}{8})\right] + 16920 \times 0.0503$$

$$= 6876.6 + 421.6 + 851.1$$

$$= 8149 \text{ B.t.u. per pound (b. d.)}$$

Applying DuLong's Formula to the composition of pine given in Gottlieb's table shown above, we get the following:

C = 0.5031
H = 0.062
N = 0.0004
O = 0.4308
Ash = 0.0037

$$\text{and } h = 14600 \times 0.5031 + 62000\ (0.062 - \frac{0.4308}{8})$$

$$= 7345.2 + 508.4$$

$$= 7853 \text{ B.t.u. per pound (b. d.)}$$

This is nearly 15 per cent below the actual calorific value found and reported in his table, and is an indication that calculated heat values cannot be indiscriminately applied to wood with considerable resin and volatile content.

A calorific test on a sample of refuse cedar which came under the writer's observation gave 8502 B. t. u. per pound.

Bulletin 73, U. S. Department of Agriculture, states that the composition of absolutely dry wood is approximately as follows:

Carbon 49%; oxygen 44%; hydrogen 6%; ash 1%.
(Note: This agrees closely with the average given by Gottlieb.)

Continuing, Bulletin 73 states: "The varying forms of tissue in the different species, the addition of resins, gums, tannin, oils and pigments, as well as water present in varying amounts, cause different woods to have different heating value materially, the results of numerous tests showing a difference ranging up to 12 per cent or more."

With the above figures ranging from 7685 to 9153 B. t. u. per

pound and Gottlieb's table averaging 8495, it is considered reasonably safe to assign a calorific value of 8500 B. t. u. per pound of bone dry extracted pine for fuel purposes.

Spent wood as it is served to the boilers in an extraction plant contains from 18 to 22 per cent of water—an average of 20 per cent.

The net fuel value of such wood can therefore be calculated as follows:

The proportionate parts of tthe contents of the wood being according to the average given by Gottlieb

C	= 49.58	× 0.8 =	39.67%
H	= 6.11	× 0.8 =	4.89
N	= 0.27	× 0.8 =	.22
O	= 43.11	× 0.8 =	34.49
Ash	= 0.91	× 0.8 =	.73
Water	=		20.00
			100.00%

The B. t. u. loss per pound of fuel in evaporating the water content, superheating same and likewise the water formed due to hydrogen content, and raising nitrogen content to temperature of flue gases, can be expressed in the following equation in which H, W and N are proportionate parts of hydrogen, water and nitrogen: tc = temperature of waste gases taken at 500 degrees F. and t = temperature of air taken at 70 degrees F.

$$(9H + W)\left[212.9 - t + 971.7 + 0.48\,(t_c - 212)\right] + 0.2438\,(t_c - t)\,N$$

substituting

$$(9\times0.0489+0.2)\left[212.9-70+971.7+0.48(500-212)\right]+0.2438(500-70)0.0022$$

equals 0.6401 × 1252.8 + 0.23
equals 801.9 + 0.23 = 802.14 B.t.u. loss

One pound dry extracted wood contains	8500 B. t. u.
With 20% moisture, bone dry factor is 0.8, and	
One pound moist wood contains 8500 x 0.8 =	6800 B. t. u.
Required to evaporate moisture constant, say	800 B. t. u.
Net fuel value of spent wood	6000 B. t. u. per pound

Compared with good steam coal of 12500 B. t. u. net fuel value, one pound of spent wood $= \frac{6000}{12500} = 0.48$ pounds of coal, or for

pounds. The spent wood is about 83.75 per cent of raw wood. Its net fuel value referred to the raw wood is therefore 960 x 0.8375 = 804 pounds per ton of wood before it has been processed, or one ton of raw wood will yield the fuel equivalent of 0.4 ton of coal.

APPENDIX B

Estimated Power Schedules for Extraction, Pulp and Paper.

Basis: 250 tons raw wood processed:
50 tons pulp and paper produced

Electrical requirements for pulp making, screening and recovery

Wood room conveyors and screens	400 hp.	
Other uses in extraction plant	100	500 hp.

$$\frac{500 \times 746}{1000 \times 0.85} = 440 \text{ kw. delivered power}$$

Operating 10 hours per day = 4400 kw-hr. per day

and per ton of raw wood $= \frac{4400}{250} = 17.6$ kw-hr. and $\frac{17.6}{10} = 1.76$ kw. per ton

Electrical requirements for pulp making, screening and recovery plant.

Digester and diffuser house	176 hp.	
Screening	209	
Evaporation and soda recovery	155	540 hp.

$$\frac{540 \times 746}{1000 \times 0.85} = 475 \text{ kw. delivered power}$$

Operating 24 hours per day = 475 × 24 = 11400 kw-hr. per day

Per ton pulp per day $= \frac{11400}{50} = 228$ kw-hr. and $\frac{228}{24} = 9.5$ kw. per ton

or per ton raw wood per day $= \frac{11400}{250} = 45.8$ kw-hr. and

$\frac{45.8}{24} = 1.9$ kw. per ton

Electrical requirements for beating, paper making and finishing

Beating and finishing @ 30 hp. per ton.....		1500 hp.
Paper making—		
Driving machine, motor driven	125 hp.	
Driving constant line	100	
Driving winder	25	250 hp.

$$\frac{1750 \times 746}{1000 \times 0.85} = 1520 \text{ kw. delivered power}$$

Operating 24 hrs. per day = 1520 × 24 = 36500 kw-hr. per day

per ton paper per day $= \frac{36500}{50} = 730$ kw-hr. and $\frac{730}{24} = 30.4$ kw. per ton

per ton raw wood per day $= \frac{36500}{250}$ 146 kw-hr. and $\frac{146}{24} = 6.1$ kw. per ton

Electrical requirements for power plant, auxiliaries, etc.

Condenser pumps	100 hp.	
Excitation	40	
Coal handling	15	155 hp.

$$\frac{155 \times 746}{1000 \times 0.85} = 136 \text{ kw. delivered power}$$

Operating 24 hrs. per day = 136 × 24 = 3260 kw-hr. per day

per ton of raw wood per day $= \frac{3260}{250} = 13$ kw-hr. and $\frac{13}{24} = 0.54$kw per ton

Electrical requirements for water supply.

7,500,000 gallons per day at say 125 feet head

$$\frac{7{,}500{,}000 \times 8.3 \times 125}{1440 \times 33000 \times 0.6} = \text{.....} \quad 275 \text{ brake hp.} \quad 275 \text{ hp.}$$

$$\frac{275 \times 746}{1000 \times 0.85} = 240 \text{ kw. delivered power}$$

Operating 24 hrs. per day = 240 × 24 = 5760 kw-hr. per dav

per ton raw wood per day $= \frac{5760}{250} = 23.0$ kw-hr. and $\frac{23}{24} = 0.96$ kw. per ton

Electrical requirements for water supply.

Shops	25 hp.	
Lighting	80	
Miscellaneous	400	505 hp.

$$\frac{505 \times 746}{1000 \times 0.85} = 440 \text{ kw. delivered power}$$

Operating 10 hrs. per day = 440 × 10 = 4400 kw-hr. per day

per ton raw wood per day $= \frac{4400}{250} = 17.6$ kw-hr. and $\frac{17.6}{10} = 1.76$ kw. per ton

	Electricity required per ton raw wood per day kw-hr.	Electrical capacity required per ton raw wood per day kw.	Total Electricity per day 250 tons wood processed, 50 tons paper production kw-hr.	%
Extraction	17.6	1.76	4400	6.7
Pulp making	45.8	1.90	11400	17.4
Paper making	146.0	6.10	36500	55.8
Steam and electric power	13.0	0.54	3260	5.0
Water supply	23.0	0.96	5760	8.8
Shops, lighting and misc.	17.6	1.76	4400	6.7
Totals	263.0	13.02	65720	100.4

Total load in kilowatts for 250 tons raw wood processed per day is 13.02 × 250 = 3255 kw.

Basis of Power Plant Operation

Steam generated in boilers at 400 lb. gauge pressure 415 lb. absolute superheated at 400 lb. gauge pressure 600°F. final temp.

High pressure steam (entire plant output) passed through high pressure non-condensing turbo-generator and pressure thereby reduced to 120 pounds gauge — 135 pounds absolute.

Power developed in this stage is delivered electrically to plant.

Steam at 120 pounds gauge pressure is delivered to condensing type bleeder turbo-generator, and low pressure steam at 25 gauge is bled from this machine to the process. The electrical load that bled steam does not produce is developed in the condensing stage of the turbo-generator.

Determine three operating conditions of turbo-generators:

1. Water rate per kw-hr, between 415 lb. abs. and 135 lb. abs. pressure.
2. Water rate per kw-hr. between 135 lb. abs. and 40 lb. abs. pressure.
3. Water rate per kw-hr. between 135 lb. abs. and 1" hg. abs. pressure.

1. Allow pressure drop from boilers to turbine of 40 lb. and temp. drop 10° Fahr., then throttle pressure is 375 lb. and 590° Fahr.

B.t.u. per pound of steam at 375 lb. and 590°	1300
B.t.u. per pound steam at 135 lb. and 362°	1200
B.t.u. available for power per pound steam	100

Allow efficiency ratio of 55 per cent for this stage, and steam per brake

$$HP. = \frac{2546.5}{100 \times 0.55} = 46.3 \text{ lb. per brake hp. hr.}$$

Allow generator efficiency of 92 per cent and steam per kilowatt hour $= \frac{46.3}{0.746 \times 0.92} = 67.4$ lb. steam per kilowatt hour.

2. Allow pressure drop from exhaust of HP turbine to throttle of bleeder turbine of 5 lb. and temperature drop of 12° Fahr. then throttle pressure is 130 lbs. and temp. is 350° Fahr.

B.t.u. per pound of steam at 130 lb. and 350° Fahr..... 1194
B.t.u. per pound of steam at 40 lb. and 350° Fahr..... 1102

B.t.u. available for power per pound of steam 92

Allow efficiency ratio of 55 per cent for this stage and steam per brake hp. $= \frac{2546.5}{92 \times 0.55} = 50.3$ lb. per brake hp. hour. Allow generator efficiency of 92 per cent and steam per kilowatt hour $= \frac{50.3}{0.746 \times .92} = 73.3$ lb. steam per kilowatt hour.

Allow same pressure and temperature drop as in case 2, then throttle pressure is 130 lb. abs. and temp. is 350° Fahr.

B.t.u. per pound of steam at 130 lb. and 350° Fahr..... 1194
B.t.u. per pound of steam at 1 in. mercury 850

B.t.u. available for power per pound of steam 344

Allow efficiency ratio of 65 per cent for this stage and steam per brake hp. $= \frac{2546.5}{344 \times 0.65} = 11.4$ lb. per brake hp. hour. Allow generator efficiency of 92 per cent and steam per kilowatt hour $= \frac{11.4}{0.746 \times 0.92} = 16.6$ lb. steam per kilowatt hour.

Steam Requirements

Steam requirements for extraction.

Metered water supplied to boilers covering 19 days operation of an extraction plant using 195 tons of raw wood per day showed an average daily consumption of 23,848 cubic feet of water or 1,490,500 pounds. Equivalent to 7,644 pounds per ton wood per day.

This includes the entire requirements for extraction, distillation, refining, radiation and leakage losses in hot weather.

For 250 tons raw wood, the steam required is 7,644 x 205 equals 1,911,000 pounds.

Steam requirements for pulp cooking, including distribution losses at 120 pounds pressure is taken at 4,200 pounds per ton of pulp per day.

50 tons production is 4,200 x 50 = 210,000 pounds daily, and per ton of raw wood $= \frac{210000}{250} = 840$ pounds.

Steam requirements for triple effect evaporators and causticizing including distribution losses at 25 pounds pressure is taken at 4,000 pounds steam per ton pulp per day.

50 tons production is 4,000 x 50 = 200,000 pounds daily, and per ton of raw wood is $\frac{200000}{250} = 800$ pounds.

Steam requirements for drying paper including distribution losses at 120 pounds pressure is taken at 7,200 pounds steam per ton pulp per day.

50 tons production is 7,200 x 50 = 360,000 pounds daily, and per ton of raw wood is $\frac{360000}{250} = 1440$ pounds.

Steam requirements for power plant auxiliaries including distribution losses at 120 pounds pressure is taken at 75000 pounds per day and per ton of raw wood $= \frac{75000}{250} = 300$ pounds.

The steam requirements for operating the condensing end of power plant turbo-generators is explained below the following table.

Process	Weight of steam per ton of raw wood per day in pounds 120 lb. Gage	25 lb. Gage	29" Vacuum	Total weight of steam per day 250 tons wood all pressures
Extraction	7,644			1,911,000
Pulp making	840	800		410,000
Paper making		1,440		360,000
Power plant	300			75,000
Power plant			916	229,000
Totals	8,784	2,240	916	2,985,000

The amount of electricity produced in the different stages is found by dividing the amount of steam used at different pressures by the steam per kilowatt hour required when delivering into that pressure.

All steam produced passes through the high pressure turbine at a throttle pressure of 375 pounds gage.

All the steam required in extraction, pulp mill, paper mill and power plant auxiliaries amounting to 2,756,000 lb. per kw.-hr. between 375 pounds and 120 pounds gage pressure. The kilowatt hours from that is therefore $\frac{2765000}{67.4} = 40890$ kw. hours.

The low pressure steam required in pulp making and paper making enters the bleeder turbine at 115 pounds pressure and is bled at 25 pounds pressure, developing a water rate of 73.3 pounds steam per kw.-hr. between those two pressures. This requirement amounts to 2240 pounds per ton of wood and 2240 x 50 = 560,000 pounds at 73.3 pounds per kw.-hr. = 7640 kw.-hrs.

These two items produce 48530 kw.-hrs. per day of the required total of 65720 kw.-hrs. leaving a balance of 17190 kw-hrs. to be produced by passing into the vacuum stage.

As all the steam that has passed the turbine up to this point has gone into process, additional steam must be drawn through the high pressure stage to admit of sufficient to go to vacuum, hence additional power is produced in the high pressure stage.

If 13795 kw.-hrs. are developed between 115 pounds and 29" vacuum at a water rate of 16.6 pounds per kw-hr. the steam required will be 229,000 pounds, and as this amount must pass the high pressure turbine with a water rate of 67.4 pounds it will develop in that stage $\frac{229000}{67.4} = 3395$ kw.-hrs.

We therefore have the electric power made up as follows:

Generated in 1st stage, kilowatt hours	40890	
Generated in 1st stage, kilowatt hours	3395	44285
Generated in 2nd stage, kilowatt hours		7640
Generated in vacuum stage, kilowatt hours		13795
Total kilowatt hours per day		65720

The steam passing to the condenser of 229,000 pounds per day is equivalent to $\frac{229000}{250} = 916$ pounds per ton raw wood per day.

The total amount of steam produced and the corresponding B.t.u. distributed to each department is shown in the following table. The B.t.u. in the steam is computed from feed water at 200° Fahr. and steam at the process pressure.

B.t.u. Balance	B.t.u.	B.t.u.	%
Total steam per day—			
2,985,000 lb. at 400 lb. gage, 600° F.....	1302–168 or 1134	=3,384,990,000	100.0
Extraction steam per day—			
1,911,000 lb. @ 115 lb. gage (saturated)..	1193–168 or 1025	=1,958,775,000	58.0
Pulp making—Cooking—			
210,000 lb. @ 115 lb. gage (saturated)..	1193–168 or 1025	= 215,250,000	6.4
Pulp making—Evaporating—			
200,000 lb. @ 25 lb. gage (saturated)..	1171–168 or 1003	= 200,600,000	5.9
Paper making—Drying—			
360,000 lb. @ 25 lb. gage (saturated)..	1171–168 or 1003	= 361,080,000	10.7
Power plant—Auxiliaries—			
75,000 lb. @ 115 lb. gage (saturated)..	1193–168 or 1025	= 76,875,000	2.3
Power plant—Condensing feature and mechanical conversion of heat to power.....		572,410,000	16.9
		3,384,990,000	100.2

An overall efficiency of furnaces, boilers and economizers of 80 per cent and coal of 12,500 B. t. u. value gives 10,000 B. t. u. per pound of coal as being transferred to steam.

The B. t. u. required in any department as shown in the fore-

going table divided by 10,000 shows the amount of coal chargeable to that department per day.

The foregoing table shows 1134 B. t. u. per pound of steam at the boiler, and the power plant requires 76,875,000 plus 572,410,000 B. t. u. or 649,285,000 B. t. u. per day to produce 65,720 kilowatt hours. There would therefore be

$$\frac{649,285,000}{1134 \times 65720} = 8.71 \text{ lb. steam per kilowatt hour.}$$

Steam can be produced in a first class boiler plant at 27.8 cents per million B. t. u. with coal costing $5.00 per ton. (See estimate below "Boiler Plant Operation.")

The steam cost of electricity would therefore be

$$\frac{649,285,000 \times 27.8}{1,000,000 \times 65720} = 0.2746 \text{ cents per kilowatt hour.}$$

Other operating costs in the electric generator room should not exceed 0.0954 cents per kw. hour or $63 per day making a cost of 0.2746 plus 0.0954 or 0.37 cent per kw. hour. (See estimate below "Generator Plant Operation.")

A power plant to meet the above requirements should be designed to deliver 2,985,000 pounds of steam per day at 400 pounds pressure and 600° Fahr. final temperature, and 65,720 kilowatt hours per day with a full load capacity of 3255 kilowatts.

The high pressure turbine should be designed to operate near its full load capacity, and when it is delivering 2,985,000 pounds of steam per day into the 120 pound pressure lines it is developing 44,285 kilowatt hours per day, or 1845 kilowatts.

One 2000 kw., 80 per cent power factor, 3 phase, 60 cycle generator with non-condensing turbine direct connected to its shaft, would operate under the above conditions at 92 per cent load factor, and at 90 per cent power factor would operate at 89 per cent load factor.

The bleeder type of condensing turbine would deliver 21,435 kilowatt hours per day, or an average of 935 kilowatts.

As the bleeder turbine becomes the governing factor in plant operation to take care of load irregularities its average load factor should be under that of the high pressure turbine.

A 1500 kw., 80 per cent power factor, 3 phase, 60 cycle generator with a condensing turbine direct connected to its shaft would operate under the above conditions at 62 per cent load factor, and at 90 per cent power factor would operate at 55 per cent load factor.

A plant arrangement of one 2000 kw. turbo-generator, high pressure, non-condensing, and two 1500 kw. turbo-generators, bleeder condensing, would always be ready to meet the demand of 3255 kilowatts at 90 per cent power factor by the operation of any two of them.

One high pressure and one bleeder condensing machine would ordinarily be used for regular plant operation, leaving one bleeder condensing machine idle.

In case of failure of the high pressure machine, due to repairs or otherwise, two bleeder type condensing machines could be operated together.

The entire mill load could therefore always be operated by holding only 30 per cent of the plant capacity in reserve.

The Boiler Plant must deliver 2,985,000 pounds of steam per day, or an average of 124,400 pounds of steam per hour, which is equivalent to approximately 4150 boiler horse power.

Boilers of the type proposed can be economically operated at 160 per cent of their rating, which would give a commercial rating required of $\frac{4150}{1.6} = 2600$ hp.

Choosing three units for this load gives a rating of each at 867 hp.

One spare boiler unit should be provided in order to properly maintain upkeep, making a total installation of 3468 commercial boiler horse power in four units.

BOILER PLANT OPERATION

Fuel to produce 3,384,990,000 B.t.u. per day at the boiler (coal at $5 per ton) in the stokers.		
$\frac{3,384,990,000 \times \$5.00}{10,000 \times 2,000}$ =		$846.24
Labor, three shifts:		
3 Head firemen at $5.00	$15.00	
3 Firemen at 3.20	9.60	
2 Coal and ash men at 2.40	4.80	29.40
Supervision, 2/3 of chief engineer's time		12.00
Power (electrical)		2.00
Power (steam)		25.00
Water, 360,000 gallons @ $0.006 per M gallons		2.16
Oil, supplies and upkeep		25.00
		$941.80

$$\frac{941.80 \times 1,000,000}{3,384,990,000} = \$0.278 \text{ per } 1,000,000 \text{ B.t.u.}$$

GENERATOR PLANT OPERATION

Steam—649,285,000 B.T.U. per day		
$\frac{649,285,000 \times 27.8}{1,000,000}$ =		$180.50
Labor, three shifts:		
3 head engineers at $6	$18.00	
3 assistant engineers at $5	15.00	33.00
Supervision, 1/3 of chief engineer's time		6.00
Power (electrical)		12.00
Oil, supplies and upkeep		12.00
		$243.50
$\frac{243.50}{65720}$ = per kw. hour		$0.0037

APPENDIX C

Estimated Cost of Pulp and Paper

ESTIMATED COST OF PULP

Wood Department	Per Ton	
Labor, screening and filling bins	$0.25	
Materials, supplies and power	0.02	
Lubrication	0.01	$0.28
Pulp Mill Labor		5.15
Raw Materials		
Wood equals cost of steam and electricity delivered to extraction plant		
1,958,775,000 Btu. at $27.8c. = $544.54		
4,400 kw. hours at 0.37c. = 16.28		
Per day 50 tons = 560.82	11.21	
Lime	3.00	
Salt Cake	6.80	21.01
Power		
Steam, cooking, ...215,250,000 Btu.		
Steam evaporating....200,600,000		
415,850,000 at 27.8c. =		
Per day 50 tons	2.31	116.60
Electricity, 11400 hours at 0.37c. =		
Per day, 50 tons $ 42.18	0.84	
Labor	0.14	
Materials and supplies	0.10	
Lubrication	0.05	3.44
Other costs		
Felts	0.50	
Materials and supplies	1.00	
Lubrication	0.09	
Other charges	0.02	1.61
Storage cost for lap pulp		0.10
Administration, proportionate part		2.50
Total manufacturing cost, pulp		$34.09

ESTIMATED COST OF PAPER

Beater room		
Labor	$1.22	
Materials, supplies, Lubrication and miscellaneous	0.10	$1.32
Machine Room		
Labor	5.10	
Wires	0.37	
Felts	1.56	
Materials, supplies, lubrication & Misc	0.82	7.85
Raw Materials		
Pulp, 1.05 tons at $34.09	35.79	
Alum	1.90	
Rosin size	3.01	40.70
Power		
Steam, 361,080,000 Btu. at 27.8 per million = $100.38 per 50 tons	2.01	
Electricity, 36,500 kw. hours at 0.37c. $135.05 per 50 ton	2.70	
Materials, supplies, lubrication & misc.	.70	
Labor	30	5.71
Finishing and shipping		
Labor	2.81	
Plugs and twine	.68	
Materials, supplies, lubrication & misc.	.26	3.75
Administration, proportionate part		2.30
Total manufacturing cost, paper		$61.83

APPENDIX D

Estimated Cost of Pulp and Paper

ESTIMATED COST OF PULP

Based on Wood	at $6.00 per cord		
Coal	at 5.00 per ton		
Electricity	at 0.01 per kw hr		
Steam per million Btu.s.	0.30		
Wood department			
Wood room labor		$1.26	
Wood room materials and supplies		0.32	
Wood room lubrication		0.04	
Wood room miscellaneous		0.01	$1.63
Pulp mill labor			5.15
Raw materials			
Wood, 2.2 cords per ton at $6 per cord		13.20	
Lime		3.00	
Salt cake		6.80	23.00
Power			
Steam, cooking	215,250,000 Btu.		
Steam, evaporating	200,600,000 Btu.		
	415,850,000 Btu. at 30 c. per million = $124.75 per day 50 tons	2.50	
Electricity, 11,400 kw hrs. (pulp mill) at 1c. per kw. hour	$114.00		
Electricity, 3,520 kw hours (wood room) at 1c. per kw hour	35.20		
Per day 50 tons =	$149.20	2.99	
Labor		0.14	
Materials and Supplies		0.15	
Lubrication		0.05	5.78
Other costs			
Felts		0.50	
Materials and supplies		1.00	
Lubrication		0.09	
Other charges		0.02	1.61
Storage cost for lap pulp			0.10
Administration, proportionate part			2.50
Total manufacturing cost of pulp			$39.77

ESTIMATED COST OF PAPER

Based on Wood	at $6.00 per cord		
Coal	at 5.00 per ton		
Electricity	0.01 per kw-hr.		
Steam per million Btu.	0.30		
Beater room			
Labor		$1.22	
Materials, supplies, lubrication & misc		0.10	$1.32
Machine room			
Labor		5.10	
Wires		0.37	
Felts		1.56	
Materials, supplies, lubrication & misc.		0.82	7.85
Raw materials			
Pulp, 1.05 tons at $39.77		41.76	
Alum		1.90	
Rosin size		3.01	46.67
Power			
Steam, 361,080,000 Btu. at 30c. per million = $108.32—50 tons		2.17	
Electricity, 36,500 kw hours at 1c. = $365.00—50 tons		7.30	
Materials, supplies, lubrication & misc.		0.70	
Labor		0.30	10.47
Finishing and shipping			
Labor		2.81	
Plugs and twine		0.68	
Materials, supplies, lubrication & misc		0.26	3.75
Administration, proportionate part			2.50
Total manufacturing cost of paper			$72.56

New Clipper Speed Lacer

The Clipper Belt Lacer Company, of Grand Rapids, Michigan, announces that their engineering department has perfected the new Clipper "Speed" Lacer. It is truly a "speed" lacer, as both ends of an eight inch belt can be laced with it in one and one-half minutes. A three-quarter turn of the crank and the powerful jaws of this machine force a row of Clipper hooks cleanly and uniformly into an eight inch belt. A pressure of 45,900 pounds on the belt is developed by an entirely new principle, embedding the hooks in perfect alignment, absolutely flush with the surface, thus prolonging the life of the joint and reducing the wear on pulleys to a minimum. The smallest belt may be laced with it with increased speed and economy.

The Clipper Belt Lacer Company further reports that they have now more than 225,000 Clipper Belt Lacers in use and their daily output of Clipper Belt Hooks exceeds 4,000,000. Only the most modern machinery makes it possible for the company to keep up with the ever increasing demand for Clipper products.

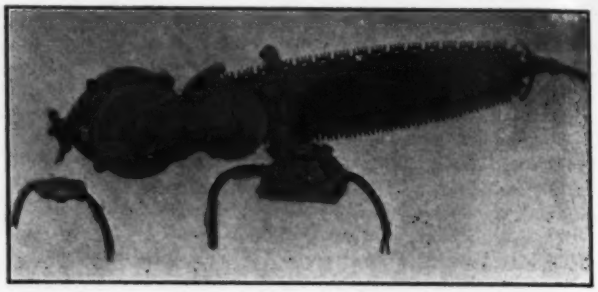
Wolf Portable Motor Driven Chain Saw

To meet the demand for a mechanical saw for felling trees, construction work, or for use in pulp mills, railroad and lumber plants, etc., there has been developed a portable chain saw, a patented mechanical device which has been most carefully tested and found entirely practical.

This machine is available for the present market in 24 inch capacity and is regularly supplied with reversing and foot control switches. It is portable and readily handled by one man, although a double saw for operation by two men can also be supplied.

The Wolf chain saw is built by Reed-Prentice Corporation, Worcester, Mass., manufacturers of high grade machine tools for over half a century, and provides the desired accuracy and close tolerances which insure highest quality and changeability of parts.

The blade is made of two pieces of selected saw steel with spacers forming a groove in which the diameter teeth travel. Provision is made for oiling the groove through a reservoir in the spacers. The gear case is packed with heavy grease and the gears are of steel, except the intermediate located between the main drive gear and the motor pinion, which is of bakelite, insuring quiet operation. All shafts are hardened and ground, running in ball bearings. The machine weighs 83 pounds, and ball bearing motor, 1½ h.p., 1,800 r.p.m., to suit standard voltages, can be supplied. The chain teeth can be operated in either direction by means of a reversing plug switch and can be stopped or started by the foot control switch as shown on the photograph. This reversal of cutting direction is desirable, as when one set of teeth become dull, the saw can be reversed to use the other set before resharpening. The top section of chain teeth is regularly supplied with a guard to protect operator and teeth from injury.



PORTABLE MOTOR DRIVEN CHAIN SAW

Junior Paper Technologist

Applications for junior paper technologist must be on file at Washington, D. C., not later than March 12. The date for assembling of competitors will be stated on their admission cards and will be about ten days after the close of receipt of applications.

The examination is to fill vacancies in various of the Government service including the Bureau of Standards at Washington, D. C.

The entrance salary in the District of Columbia is $1,860 a year. After the probational period required by the civil service act and rules, advancement in pay depends upon individual efficiency, increased usefulness, and the occurrence of vacancies in higher positions. For appointment outside of Washington, D. C., the salary will be approximately the same.

Competitors will be rated on general chemistry and elementary physics, mathematics up to and including calculus, and practical questions on paper technology.

The work of the Bureau of Standards includes many branches of physics, chemistry, and engineering, also industrial technology, including research and standardization, and offers valuable experience in these professions, combining as it does theoretical, experimental, and practical work.

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Management Problems in the Small Plant*

Factors Which Experience Proves Are Most Important For Successful Business Operation

By Henry P. Wherry, General Mgr., Rossendale Reddaway Belting & Hose Company

(*Continued from the Paper Trade Journal of January 6, 1927*)

When a reader picks up a book or magazine, attracted by a title which promises much-desired information on some important topic of plant management, he is very often disappointed to find that the data presented deals with large manufacturing organizations and cannot be readily applied to his own smaller operations. In large plants it is possible to follow procedure through to a definite conclusion and to develop methods in detail for the accomplishment of desired results. This sort of material is often of such great personal interest to the author, that his enthusiasm causes him to dwell upon its vast importance in saving huge sums of money for the big company. He therefore neglects to translate and interpret the methods he describes so that they can be applied to the small plant faced with similar problems.

Problems Differ Mainly in Extent

After all, the problems of the small plant differ from those of the large one mainly in extent. What are small-scale activities in the one case, take on vaster proportions in the other. Each has to produce and market its product, finance its operations, and manage the details of its business so that all efforts coordinate in bringing about success. Hence, it is very easy to say that the same principles that apply in the big plant can be adapted to the small company. This is the way the author of a book or article usually dismisses the question of the utility of the methods he outlines to smaller scale operations. But, in the small plant, who has the time and opportunity to study out ways to make the adaptation and apply the better methods?

The present article outlines the problems facing the small plant as they have been encountered by the author. While this article has been broadly built up to cover the operations of industrial plants in general, naturally it somewhat features personal experiences and hence may occasionally reflect more particularly the vital situations arising in one individual manufacturing organization. However, if the topics discussed stir the managers of other plants, whose problems may have had quite different weights and inter-relations, to come to the fore with their own stories of difficulties met and mastered, or at least kept from working real injury to the business, the resulting exchange of ideas will have accomplished a definitely helpful purpose and will assist in smoothing the thorny path of the executive in the smaller concern.

The one outstanding difference between the application of management methods in the large and the small plant lies in the fact the large plant can afford to engage an adequate personnel to shoulder the detailed responsibilities of operation in the various departments, and can afford to make the investigations and do the experimenting which will develop better and cheaper methods and eventually repay the cost many times over. The small plant has neither the working force nor the funds to apply to such purposes. If the large plant should find that its efforts toward improvements were bringing about no profitable results, it can easily charge off the money spent with but slight ill effects. The small company, however, often has difficulty in financing operations necessary for the existence of the business and has little if any money to spend in investigating and trying to develop improved methods for the carrying on of its activities.

Executives in Large and Small Plants

The executive in the large organization has assistants to whom he can delegate many of his responsibilities. Thus his time is in large part free for administrative work. When unusual conditions or emergencies arise, requiring his attention, he can give immediate consideration to the problems and quickly arrive at decisions. By means of reports and conferences he is kept in close touch with the major operations of various departments. Statistics and charts show him the trend of developments in all lines of activity, and in this way he is enabled to keep close supervision and control over the many branches of the business.

The executive in the small plant cannot afford to engage many assistants to help with his work. Those he does have, are called upon to fulfill a wide variety of duties which they, in turn, are unable to delegate to assistants because of the necessity of keeping overhead charges within definite limits. Thus none of these men have much time for administrative duties. They must perform many of the details of their work themselves. The keeping of extensive records and the develop-

* From Manufacturing Industries.

ment of comprehensive statistics and charts is out of the question.

Matters are continually coming up for decision and must have immediate attention. Decisions must be based upon information either already on hand or rapidly collected from any available source. Analysis and study to arrive at the correct solutions is often impossible. The course adopted is determined on the basis of previous experience, rapid judgment, cut-and-try methods, and a general feeling that it will probably work out somewhere near to the desired objective.

Sometimes it is impossible to decide upon a course of action without stopping to collect data, analyze the information, investigate the various methods of attack, and weigh the possibilities of success. Also, the execution of some plan may require far more time on the part of the executives than was anticipated. Meanwhile minor troubles are arising in other directions, but cannot be given attention because time is lacking. These minor difficulties rarely fail to grow to large proportions, if they are not soon corrected. Hence, by the time the one big project on hand has been successfully launched, a second equally important job looms up because of some insignificant detail which through enforced, but unintentional neglect has assumed major importance.

Small Problems Grow Big When Put Aside

The energies of executives in small plants are continually directed in this manner to solving a succession of problems which, if they could be handled when first arising, would offer little if any difficulty. In this respect the large company has a very decided advantage. Troubles become evident as soon as they begin to develop, because operations have been organized into routine and placed under control so as to signal when something goes wrong. All down the line of organization, responsibilities have been assigned to definite men, who watch out for and take care of troubles as soon as they crop up. When these men find that the problems stubbornly resist solution and get too big for them to handle, they have superior executives to whom they can appeal. These executives have the ability, time, funds and authority to correct the situation. Head executives in such plants, therefore, work largely along the exception principle, giving attention to details only when they begin to offer difficulties to subordinate executives, and meanwhile devoting their time to coordinating the work of the divisions under their control and working out better methods for conducting operations in these departments.

The problem of the executive in a small plant is further complicated at the present time because of the generally small margin of profit in most lines of business. With the productive capacity of manufacturing plants developed up to the limit, or even beyond the demands of the market, which is the condition existing today due to World War developments and subsequent expansion of facilities resulting from the favorable price situation during 1919 and 1920, radical price cuts have become necessary in almost every industry. With the margin of profit cut down, and with wages and overhead costs remaining high, even though many raw materials were reduced in price, plants were forced to increase their volume of manufacturing and to strive for a more rapid turnover of products in order to maintain earnings at reasonable and safe levels.

Advantage Possessed by the Large Plant

For the large plant although the sums at stake were tremendous, the working out of a solution to these problems was not an insurmountable difficulty. Capable executives, with the necessary group of experienced assistants, and with funds at their disposal to put the new policies of operation into effect, were able to make the changeover without radically upsetting the course of their businesses. The small plant, where executives had neither the time nor the assistants to work out new plans of operations, and where money was not available to bring about the changes, found itself in situations which were often desperate.

With this preliminary outline of the chief points of difference between operations in small and large plants, attention will now be directed to a discussion of the activities which the small organization must conduct in order to carry on its business successfully.

The problems of the small plant group into four major phases: Sales, production, financing and the correlation of these three activities by the management.

Of the four functions, that of sales practically always offers the most difficulty. Every going concern must of course, manufacture a product which has an actual market. The discussion in the present article will be limited to this type of company, and will not take directly into consideration promotional schemes where the articles produced are being turned out by a new concern which has just commenced operations.

Sales Problems

Sales problems class under four headings: Market analysis and marketing, sales organization, sales control and sales development. It is best to undertake any study of the sales situation in this order.

Too much emphasis cannot be placed upon market analysis. Before any move is made either to increase production of lines already being manufactured, or to introduce new products, a very careful survey has to be made to find out the nature of the demand for such an output. The first questions that arise are: In what fields will the product sell? Where are these fields located? What outlets exist? What other customers will the product appeal to? In the case of articles sold to industrial users, what size companies will buy the output? In what quantities can it be sold? Should it be sold directly by salesmen or should it be distributed through wholesalers and jobbers? Will it have any retail sale? Should it be advertised by direct mail, through technical publications, or through the newspapers? Is there any value in the claims put forth by various magazines for the general reader regarding "national coverage?"

On the answers to these and many similar questions hinges the entire selling plan. The number and type of salesmen to employ, the method of sales organization, the development of sales methods and programs, the laying out of compaigns, the working up of the appeals, the possible coverage, and every other angle of the sales problem, must be analyzed from this standpoint.

Immediately the sales manager, or other executive placed in charge of sales, is faced with the difficulty of securing an appropriation large enough to make a thorough marketing study. The large company with perhaps a nationally known product can afford to delve deeply into economic statistics. All sorts of commercial data and reports both from government and private sources can be carefully weighed. Special services can be subscribed for and the data they supply translated into facts and figures directly applicable to sales of the product. Experts in marketing research and in economic analysis can be engaged, either professionally or as regular employees, to make special studies for the sales department. It is even possible to undertake investigations of only indirect immediate application and verging more on the field of economics.

Difficulties Confronting the Sales Manager

Without funds to subscribe for special services, engage marketing experts, or place a man on the payroll to undertake sales research, and without time to study the sales problem from the economic standpoint, or to analyze and apply data which is published by the government and in trade papers, the sales manager in the small company is reduced to the

necessity either of snatching up such scraps of advice as he believes he can rely on, or tackling the problem boldly from the cut-and-try standpoint. The latter course is the one he usually adopts, tempering his methods by the results of previous experiences, much of its probability of the bitter kind.

However, there are a few clearcut principles upon which he can base a good bit of his experimenting. The fields in which the product will sell need not all be covered at once. A few of them will be very evident, and on these it is best to concentrate at first, provided the outlet appears to be sufficient. Ample data can be secured showing the centers of activity in each particular field. Much of this information is common knowledge. A little additional difficulty will be experienced in determining what outlets in these particular fields the product is best fitted for. Fringe lines of trade can best be left until later for development, when they may be approached as a means of absorbing small margins of surplus production over what the heavy demand of the trade takes.

The size of companies which will buy the output follows largely as a matter of course. The quantities in which it can be sold form the basis for the production program and should, of course, receive careful attention. Refinements on this point, however, can be left until the question of sales development is taken up.

Sales Methods Important

The method of selling is very important. Often the nature of the product will point out whether direct sales, or sales to wholesalers, should form the basis of the plan. For products used altogether or almost exclusively by industrial plants, direct sales are very often advisable, while for products of general consumption the wholesaler is almost always a necessary medium.

Advertising must be undertaken in some form or other if the company is to keep its name before the trade and introduce its products to prospective new customers. Articles of household consumption find advertising outlets in popular and home magazines, while products for industrial use find technical, trade and engineering publications much more suitable mediums. For many products the sales or advertising manager is at a loss to know what means to employ. He cannot afford to take a plunge and rely on chance to return him his investment and more, in advertising space. He has no means of checking up on inquiries to find out whether his advertising has paid or not, unless he goes to the expense, rarely ever justified, of sending out letters to find out just how the inquirers learned of his product.

The large plant can occasionally run a special advertising test and, in the long run, justify the expenditure by actual proved returns. The sales department can also conduct trial campaigns in specified territories and on the results of these investigations determine whether to push the sales of certain products, invade certain fields, alter or improve the articles manufactured, or develop new lines. Ambitions that the sales manager of the small plant has along these lines are usually very quickly cut short when he gathers a few rough figures showing what the expense will be if he undertakes any such field tests.

Relations with Customers

When the sales manager, at the expenditure of a tremendous amount of personal energy, has arrived at decisions, along the above lines, which he believes are sound enough to form a basis for his policies of marketing products, he still is not through with the marketing question. He must gain some reliable knowledge of the characteristics of his present and prospective customers. Perhaps there are customs or traditions of the trade with which he must become familiar and which he must observe. He must have some idea whether his customers will readily change to competitors, or whether they have formed a habit of picking out some reliable line of product and giving repeat orders so long as satisfaction is secured. It is important for him to know whether either the nature of the business or the characteristics of the customers will lead to the exaction of conditions difficult or almost impossible to meet. The ability of the company to live up to specifications and contracts must be carefully determined so that cancellations and rejections are avoided to the fullest possible extent. Such cancellations are often disastrous to the small company.

The sales manager can never lose sight of the fact that he is up against strenuous competition, and that this is a far more crucial point to consider in his company than in that of a large manufacturer who has more opportuity to meet his rivals on favorable terms. He must make sure of his own company's position in the field. There are many phases of the question to take into consideration and no time or trouble should be spared to weigh them all carefully.

Miami Valley Traffic Club Meets

DAYTON, Ohio, February 9, 1927.—The fifth annual dinner of the Miami Valley Traffic Club was held at the Miami Hotel, Dayton, on February 9, and proved an event of statewide interest. Practically all of the paper manufacturing and machinery concerns in the valley were represented.

Thomas T. Webster, general traffic manager of the G. H. Mead Company, manufacturers and distributors of paper, Dayton, acted as toastmaster in a creditable manner.

Reports of activities of the organization during the past year were submitted by A. H. Finley, president, and Maurice T. Otto, secretary.

The principal speakers at the dinner meeting were Lieutenant Colonel William M. Munn, Columbus; Prof. Frank D. Slutz, Dayton, and Robert S. Binkerd, vice chairman of the committee on public relations of Eastern railroads.

Six new directors were elected. R. F. Schwindeman, manager of the Universal Car Loading Company, was general chairman of the committee in charge of the meeting which was attended by representatives from Cincinnati, Hamilton, Middletown, Springfield, Xenia, Piqua, Sidney and other Miami Valley towns.

Union Bag Employees Hear Safety Address

HUDSON FALLS, N. Y., February 7, 1927.—Employees of the Union Bag and Paper Company, who have enrolled in an accident prevention campaign, listened to an interesting address early this week at the Hudson Falls plant on accident prevention, the principal speaker at the gathering being Harry G. Stevens, of Albany, safety agent of the Delaware & Hudson Railroad Company. The meeting was attended by officials and employees of all departments. S. H. Brown, assistant secretary of the Union Bag Company at the New York office, introduced Mr. Stevens.

The speaker deplored the fact that men in industry suffered pain or met untimely death year after year when such cases are invariably due to careless habits of the employees and some ten to fifteen per cent of the accidents traceable to machinery and material causes. Urging whole hearted co-operation to insure complete success for the safety work he said that constant supervision on the part of the foremen would bring about a substantial reduction in personal injuries. Following the address a moving picture dealing with accident prevention was shown and a luncheon served by the women of the plant.

Raymond Automatic Pulverizers

An attractive new catalogue has just been issued by the Raymond Bros. Impact Pulverizer Company, of Chicago, Ill. This catalog is unusual in that it goes in great detail into various pulverizing problems, and illustrates the different pulverizers as best adapted to various kinds of materials. It also includes the description of a complete Air Separating plant.

COST SECTION

"Balance Sheet Ratios" *

By Thomas J. Burke

There is no standard form of Balance Sheet, as you know; in fact, its form often depends upon the purpose to be served. A "Balance Sheet" or "Statement of Assets and Liabilities" or "Financial Statement," all of which terms are used, should show clearly the name of the concern and the date to which it applies. The chief purpose of a Balance Sheet is to show the financial situation existing at the close of a certain day's business, as closely and accurately as it can be fairly determined. One of its chief uses, is to show the degree of solvency for purposes of obtaining credit.

Solvency is not determined solely by the value of the assets as compared to the value of the liabilities. In fact, we have all heard of insolvencies in our own industry, where the real value of the assets was greater than the outstanding liabilities. Solvency is also determined by the totals of the different kinds of assets and their relation to the different classes of outstanding liabilities.

The point is, that the assets may be so tied up either in fixed assets such as buildings and machinery, etc., and in frozen credits, that it is impossible to use them to liquidate current liabilities. This fact should always be borne in mind, when compiling a Balance Sheet. It should be so arranged, that the application, for instance, of current assets to current liabilities is clearly shown. Debts must be paid in cash when due, and arrangements made to meet other obligations at date of maturity.

All assets and liabilities must be included in Balance Sheet at their correct value, as far as it is possible to determine this value, reserves being set up to take care of doubtful assets. In particular, inventories should be valued according to approved methods.

Comparison of Balance Sheet

I might say here, that it is very desirable to compare Balance Sheets at beginning and end of an accounting period, and show the increase or decrease in each kind of asset and liability. The Net Worth will, of course, show an increase or decrease, according as a profit or loss has been made during the period. If the balance sheets are set up side by side, it can be seen at a glance how, for instance, an increase of Net Worth of say $100,000.00 has been accounted for. It may all have gone into fixed assets, or partly into fixed and partly into current assets (such as inventories or accounts receivable); or, again, it may have been used to pay off a bank loan, thereby decreasing the liabilities, or partly in increasing one or another of the assets. Of course, the strongest kind of statement will show it, viz.; the increase in Net Worth, in hand in the form of Cash, or easily negotiable securities at the end of the financial period.

I have made these few remarks about Balance Sheets, to bring out the importance of considering the relationship between the different kinds of Assets and Liabilities, and those of you, who have not already done so, might consider working out the percentages or ratios which each of the assets and liabilities also Net Worth bear to each other at the beginning and end of the period, using the totals in each case as 100 per cent. This will assist those examining the Statement to grasp quickly the fundamental changes that have taken place in the financial situation of your concern, during the period covered.

Definition of Ratio

It is not necessary for me to define percentage or ratio to you. However, to avoid misunderstanding, I might say, that Webster defines ratio as the "Quantitative relation between two similar magnitudes, determined by the number of times one contains the other integrally or fractionally." Now there can be no mistake as to just what a ratio is.

I recommended above that ratios should be worked out for Balance Sheets, for what we usually do when we look over a Balance Sheet, is to do just this thing, viz.—figure out how many times, for instance, the current liabilities are contained in the current assets. It's the "ratios" in the Balance Sheet that interest us.

Now what are the ratios that should be of particular interest to us? At the risk of boring you,I am going over these again and make some explanation about each one, and why it should be of interest. In every ratio I name, the first item should be divided by the second:

1—Current Assets to Current Liabilities
2—Net Worth to Total Debt
3—Net Worth to Fixed Assets
4—Inventories to Receivables
5—Sales to Receivables
6—Sales to Inventories
7—Sales to Fixed Assets
8—Sales to Net Worth

Others could be added, of course; for instance, the ratio of Net Worth to Net Profits and Sales to Net Profits in which we are vitally interested. Let us take:

No. 1 Current Assets to Current Liabilities

This ratio is well known and simply shows the proportion existing between the Current Assets and Current Liabilities. It is the ratio most generally considered for credit purposes, it being generally considered that for every $1.00 outstanding as Current Debt there should be $2.00 in Current Assets. It soon came to be recognized, however, that this one ratio did not express sufficiently well the real situation, because what might be considered good in one industry, might be poor in another, depending on the turnover in the business. The higher this ratio runs, the freer the Current Assets are from debt claims by creditors, and the more likely it is therefore, that creditors will receive prompt payment.

No. 2 Net Worth to Total Debt

By dividing the Net Worth of the business by the total of the outstanding debts, we get a ratio expressing the proportion existing between the owned capital, and the loaned capital. The principle involved is that the whole capital being used in the operation of a concern consists of its own Net Worth, plus the capital loaned to it more or less temperorarily by its creditors, represented by its debts. The proportion existing between the "owned" capital and the "loaned" capital should always be carefully considered in connection with any proposed borrowing, either of a temporary or more permanent nature. This ratio records clearly the "debt pressure," the higher it is, as here computed, the easier, of course, being this debt pressure since the owned capital will be larger in proportion to the "loaned" capital. No business should be "top heavy with debt." This has to be carefully watched in our industry, where such large commitments have to be made in buildings and machinery, etc., before operations can be started and any returns obtained.

No. 3 Net Worth to Fixed Assets

This ratio is obtained by dividing the Net Worth by the Fixed Assets, representing the amount invested in Assets of a

* Address given before Connecticut Valley Division of Cost Assn.

Non-Current nature, that is, Assets which are necessary to carry on the business, but which cannot easily be sold in case of necessity.

It is a ratio that should receive most careful consideration in our industry, expressing as it does, the proportion existing between the "owned" capital and the money tied up in Non-Current or not easily liquidated Assets. The higher this ratio is the more liquid is the Net Worth. In this connection I want to say here, that in studying Balance Sheets received from different mills all over the country during the past three years, I have noted some tremendous variations in this ratio. In figuring it, I have always deducted the Reserve for Depreciation from the Fixed Assets, reducing them to the Net Amount, but in spite of this, have quite frequently found that the entire "owned" capital, or by far the larger portion of it had been used up in purchasing these Assets, leaving nothing, or a very inadequate amount, for "working capital."

There is an important point to be considered here. Am I right in deducting this Depreciation Reserve from the Fixed Assets? The Robert Morris Associates to whom I am indebted for much of the material used in this address, have argued that these Assets should be expressed at their maximum amount, and not at their net amount. They argue that it is rarely that a Depreciation Reserve is provided for by a Special Fund in which "liquid funds" are left available for use whenever it becomes necessary to replace any of the Assets, for which the depreciation has been provided. They state that while the amounts are "ear-marked" in this manner, thereby preventing them being included in the profits and paid out improperly in dividends, the actual cash profits are reinvested usually in some form or other in the business, so that when funds are required to replace a worn-out depreciated asset, they have to be provided for out of current cash or by special financing. This is more or less true and has an important bearing on the "liquidity" of the business. It is a point that wants to be particularly carefully considered by us, with our large "fixed" assets, and comparatively small turnover. That is why I feel doubtful whether in stating thees ratios I am correct in first deducting the Depreciation Reserve from the Fixed Assets.

A good deal must depend on the amount of the Reserve and the degree of liquidity shown by the Statement. Right or wrong, I have done this however, and if I had not done so, the position as regards the proportion of the "owned" capital tied up in the fixed assets would have been still larger. My reason for treating these Depreciation Reserves in this way, was because they are "impaired" reserves, that is, reserves set apart for a particular purpose, to replace a wasting asset and the proper accounting procedure is not to show such reserves on the liability side of the statement, but to deduct them from the asset for which the reserve has been set up and show the net amount as the value of this asset. I believe I have treated this matter in the more correct way, but the point raised by the bankers' credit men should not be overlooked nor forgotten.

No. 4 Inventories to Receivables

This ratio is obtained by dividing the inventory total by the total of the accounts and notes receivable outstanding. It is not as important as the foregoing ratios, since it expresses the proportion between a "cost" item and a "selling price" item, which together usually make up the bulk of the "current assets." The point is, that as the proportion of the "receivables" in the current assets increase, so does the "profit" item included therein increase, and this has some bearing on the fluctuations of the current ratio, since current assets are thus increased, without any increase, of course, in current liabilities. It should also, in a general way, throw some light on the necessity for the inventories carried (either too large or too small).

No. 5 Sales to Receivables

This ratio is secured by dividing the net annual sales by the total outstanding accounts and notes receivable, and expresses the relationship between the total annual business, and the outstanding receivables, these being the uncollected sales for the period. The number of days' sales should be considered when studying this ratio, as well as the usual terms allowed in the particular industry in which the concern is engaged.

No. 6—Sales to Merchandise

In this case, the sales are divided by the total inventory, the resulting ratio expressing the proportion between the Sales and Inventory, which is a comparable measure of the turnover from year to year. Merchandising capacity can be measured, within reasonable bounds, by the sales developed per unit of inventory. The greater the proportion of sales to inventory, the greater is, of course, this merchandising capacity, and the less doubt there is about the liquidating value of the inventory.

No. 7—Sales to Fixed Assets

In our industry we should always be particularly interested in any ratio of which "Fixed Assets" forms a part. Net Annual Sales being divided by the total fixed assets, we get a result indicating the Sales productivity of the fixed assets, expressed by the relation of the Sales to the money invested in non-liquid assets, that is, assets used in making pulp and paper, or paper products. This ratio should be carefully studied over a long period, before any decisive steps are taken, involving large expenditures for the purpose of expanding the fixed assets and the productivity of the plant. This ratio and the one following, have a bearing on each other.

No. 8—Sales to Net Worth

By dividing the net annual sales by the Net Worth, we get a result reflecting the sales activity of the invested capital. In my opinion, it is very important to consider this ratio in connection with the "Sales to Fixed Assets" ratio. Let us suppose for instance that—

Net Worth	equals	$100,000
Fixed Assets	equals	75,000
Sales	equals	150,000

The ratio of Sales to Fixed Assets is thus 2 to 1—
The ratio of Sales to Net Worth is thus 1½ to 1.

We will also suppose that Net Profit made is 10 per cent on Sales, or say $15,000, which is 20 per cent of the Fixed Assets and 15 per cent of the Net Worth or owned capital. In other words, since the sales are 1½ times the owned capital, the net profit thereon is increased 50 per cent, viz—5 per cent. If the sales had been twice the Net Worth viz—$200,000, and the same rate of profit had been maintained, the Net Profit on the owned capital would have been increased 100 per cent over the profit per dollar, made on the sales. That is merely a question of turnover, but the point is raised as to whether the Fixed Assets could take care of the increased production necessary for the increased Sales, and if not, whether the expenditures necessary for any expansion therein, would be justified by the general business outlook, and the probable returns.

The trouble in our industry is, that the net annual Sales are so small, in comparison with the Net Worth or owned capital, while usually a large proportion of this Net Worth is invested in the Fixed Assets.

It is most certainly a case in which every sale must include its fair proportionate share of the Net Profits, if an adequate return is to be obtained on the capital invested in the business.

Bird & Son have begun an extension to their No. 2 machine room at the East Walpole paper plant. The addition will include a new roll storage room.

COST SECTION

Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING FEBRUARY 12, 1927

SUMMARY

Cigarette paper .....50 cs.
Wall paper .....90 bls., 15 cs.
Paper hangings .....74 bls., 16 cs.
News print .....949 rolls
Printing paper .....298 bls., 11 cs.
Stencil paper .....52 cs.
Pergamyn paper .....60 cs.
Wrapping paper .....538 rolls, 11 cs.
Decalcomania paper .....33 cs.
Photo paper .....2 cs.
Baryta coated paper .....125 cs.
Surface coated paper .....55 cs.
Metal paper .....8 cs.
Filter paper .....36 cs.
Drawing paper .....64 cs.
Tissue paper .....60 cs.
Writing paper .....4 cs.
Typon paper .....2 cs.
Envelopes .....50 cs.
Miscellaneous paper ....624 rolls, 17 bls., 265 cs.

CIGARETTE PAPER

Standard Products Corp., Vincent, Havre, 40 cs.
Standard Products Corp., Waukegan, Havre, 50 cs.

WALL PAPER

Nancy McClelland, Inc., Tuscania, Southampton, 1 cs.
A. C. Dodman, Jr., Inc., Tuscania, Southampton, 1 cs.
F. J. Emmerich, Tuscania, Southampton, 4 bls.
F. J. Emmerich, Cedric, Liverpool, 23 bls.
R. F. Downing & Co., Minnetonka, London, 14 bls., 3 cs.
F. J. Emmerich, Hamburg, Hamburg, 16 bls., 7 cs.
Gallagher & Ascher, Hamburg, Hamburg, 17 bls.
Globe Shipping Co., Hamburg, Hamburg, 1 bls.
W. H. S. Lloyd & Co., Aurania, Liverpool, 7 bls.
A. C. Dodman, Jr., Inc., Aurania, Liverpool, 6 bls.
Davies Turner & Co., American Farmer, London, 1 cs.
F. J. Emmerich, Hindenburg, Hamburg, 2 bls., 2 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Minnetonka, London, 54 bls., 11 cs.
A. C. Dodman, Jr., Inc., Aurania, Liverpool, 20 bls.
Whiting & Patterson Co., Inc., Olympic, Southampton, 5 cs.

NEWS PRINT

Parsons & Whittemore, Inc., Pres. Harding, Bremen, 680 rolls.
Journal of Commerce, Pres. Harding, Bremen, 76 rolls.
A. S. Zabriskie, Pres. Harding, Bremen, 131 rolls.
F. Henjes, Jr., Hindenburg, Hamburg, 62 rolls.

PRINTING PAPER

Oxford University Press, Cedric, Liverpool, 11 cs.
W. Hartmann & Co., Inc., Hamburg, Hamburg, 298 bls.

STENCIL PAPER

Arlac Dry Stencil Co., Hamburg, Hamburg, 49 cs.
Happel & McAvoy, Hamburg, Hamburg, 3 cs.

PERGAMYN PAPER

F. C. Strype, Hamburg, Hamburg, 40 cs.
F. C. Strype, Hindenburg, Hamburg, 20 cs.

WRAPPING PAPER

Bendix Paper Co., Hamburg, Hamburg, 7 cs.
Fidelity Trust Co., Hamburg, Hamburg, 538 rolls.
Bendix Paper Co., Hindenburg, Hamburg, 4 cs.

DECALCOMANIA PAPER

L. A. Consmiller, Pres. Harding, Bremen, 8 cs.
C. W. Sellers, Pres. Harding, Bremen, 9 cs.
C. W. Sellers, Hamburg, Hamburg, 16 cs.

PHOTO PAPER

J. J. Gavin, Cedric, Liverpool, 2 cs.

BARYTA COATED PAPER

Globe Shipping Co., Bremen, Bremen, 116 cs.
F. Murray Hill, Bremen, Bremen, 9 cs.

SURFACE COATED PAPER

Whiting & Patterson Co., Inc., Hamburg, Hamburg, 7 cs.
Hensel, Bruckman & Lorbacher, Hamburg, Hamburg, 4 cs.
Whiting & Patterson Co., Inc., Hindenburg, Hamburg, 4 cs.
Phoenix Shipping Co., Hindenburg, Hamburg, 40 cs.

METAL PAPER

Overton & Co., Hamburg, Hamburg, 1 cs.
Tamm & Co., Hamburg, Hamburg, 7 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Minnetonka, London, 9 cs.
A. Giese & Son, Hamburg, Hamburg, 19 cs.
C. Schleicher Schull Co., Hamburg, Hamburg, 8 cs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., Minnetonka, London, 2 cs.
Keuffel & Esser Co., Hindenburg, Hamburg, 62 cs.

TISSUE PAPER

Old Master Paper & Pulp Corp., Hamburg, Hamburg, 40 cs.
F. C. Strype, Aurania, Liverpool, 20 cs.

WRITING PAPER

Guibout freres, Olympic, Southampton, 2 cs.
American Express Co., Waukegan, Havre, 2 cs.

TYPON PAPER

Globe Shipping Co., Olympic, Southampton, 2 cs.

ENVELOPES

Globe Shipping Co., Pres. Harding, Bremen, 50 cs.

MISCELLANEOUS PAPER

Insight Paper Co., Stavangerfjord, Frederickstad, 492 rolls.
Burroughs, Wellcome & Co., Minnetonka, London, 3 bls.
Globe Shipping Co., Hamburg, Hamburg, 96 cs.
International Fdg. Co., Hamburg, Hamburg, 26 cs.
Armour & Co., Hamburg, Hamburg, 69 rolls.
Keller-Dorian Paper Co., Olympic, Southampton, 7 cs.
Perry, Ryer & Co., Cameronia, Glasgow, 67 cs.
G. Gennert, Inc., Waukegan, Havre, 31 cs.
Keuffel & Esser Co., Hindenburg, Hamburg, 38 cs.
Perkins, Goodwin & Co., Hindenburg, Hamburg, 63 rolls.
National Consumers Paper Co., Hindenburg, Hamburg, 14 bls.

RAGS, BAGGINGS, ETC.

W. Schall & Co., Sangamon, Marseilles, 73 bls. rags.
I. Cohen Son & Co., Tuscania, Southampton, 52 bls. flax waste.
American Express Co., Minnetonka, London, 67 bls. rags.
Equitable Trust Co., Bremen, Bremen, 83 bls. thread waste.
Chase National Bank, Bremen, Bremen, 27 bls. rags.
The Barrett Co., Hamburg, Hamburg, 52 bls. rags.
Chase National Bank, Hamburg, Hamburg, 65 bls. rags.
B. D. Kaplan, Aurania, Liverpool, 24 bls. rags.
W. Schall & Co., Cameronia, Glasgow, 23 bls. rags.
C. R. Spence, Cameronia, Glasgow, 42 bls. rags.
Brown Bros. & Co., Cameronia, Glasgow, 33 bls. rags.
American Over-Ocean Corp., Hamburg Maru, Kobe, 50 bls. rags.
S. Silbermann & Co., Hamburg Maru, Kobe, 13 bls. rags.
Royal Bank of Canada, Hamburg Maru, Nagoya, 65 bls. rags.
Castle & Overton, Inc., Hamburg Maru, Nagoya, 40 bls. rags.
M. Frank, Hamburg Maru, Nagoya, 60 bls. rags.
E. Butterworth & Co., Inc., Francisco, Hull, 310 bls. paper stock.
Salomon Bros. & Co., Francisco, Antwerp, 67 bls. flax waste.
Castle & Overton, Inc., Francisco, Newcastle, 88 bls. rags.
P. Berlowitz, Pres. Harding, Bremen, 152 bls. rags.
A. W. Fenton, Inc., Pres. Harding, Bremen, 288 bls. rags.
Goldman, Sachs & Co., Pres. Harding, Bremen, 275 bls. rags.
C. B. Richard & Co., Pres. Harding, Bremen, 50 bls. rags.
Castle & Overton, Inc., Waukegan, Havre, 94 bls. rags.
Castle & Overton, Inc., Waukegan, Havre, 103 bls. bagging.
V. Galaup, Waukegan, Havre, 53 bls. rags.
E. J. Keller Co., Inc., Waukegan, Dunkirk, 148 bls. rags.
Salomon Bros. & Co., Waukegan, Dunkirk, 18 bls. rags.
American Woolstock Corp., Hindenburg, Hamburg, 8 bls. rags.
Castle & Overton, Inc., Pennsylvanie, France, 17 bls. rags.
Castle & Overton, Inc., Pennsylvanie, France, 122 bls. bagging.

OLD ROPE

Brown Bros. & Co., New York City, Bristol, 32 coils.

MANILA ROPE

United Fruit Co., Cedric, Liverpool, 37 coils.
Ellermans' Wilson Line, Minnetonka, London, 57 coils.
N. E. Berzen, Waukegan, Havre, 116 rolls.

CHINA CLAY

J. Dixon Crucible Co., Cedric, Liverpool, 20 bags.

CASEIN

M. E. Clarendon & Co., Commack, B. Aires, 417 bags, 25,020 kilos.
Casein Manfg. Co., Commack, B. Aires, 845 bags, 110,217 kilos.
T. M. Duche & Sons, Commack, B. Aires, 3,595 bags, 165,180 kilos.

WOOD PULP

Castle & Overton, Inc., Bremen, Bremen, 600 bls. wood pulp.
Chase National Bank, Bremen, Bremen, 400 bls. wood pulp.
J. Anderson & Co., Bremen, Bremen, 675 bls. wood pulp.
M. Gottesman & Co., Inc., Hamburg, Hamburg, 1,570 bls. wood pulp, 318 tons.
M. Gottesman & Co., Inc., Hjelmaren, Stockholm, 3,000 bls. wood pulp.
Perkins, Goodwin & Co., United States, Oslo, 250 bls. wood pulp.

WOOD FLOUR

Innes, Spieden & Co., United States, Copenhagen, 678 bags.

BOSTON IMPORTS

WEEK ENDING FEBRUARY 12, 1927

Moore & Munger, Briarpark, Fowey, 203 tons, 16 cwt. china clay.
English China Clay Sales Corp., Briarpark, Fowey, 2,072 tons, 6 cwt. china clay.
English China Clay Sales Corp., Briarpark, Fowey, 550 casks, 275 tons china clay.
Atterbury Bros., Inc., Commack, B. Aires, 423 bags casein, 25,380 kilos.
1st Natl. Bank of Boston, Commack, B. Aires, 417 bags casein, 25,020 kilos.
T. M. Duche & Sons, Commack, B. Aires, 1,668 bags casein, 100,080 kilos.
Castle & Overton, Inc., Cronshagen, Germany, 5,998 bls. wood pulp.
Castle & Overton, Inc., Western Ally, Holland, 344 bls. wood pulp.

BALTIMORE IMPORTS

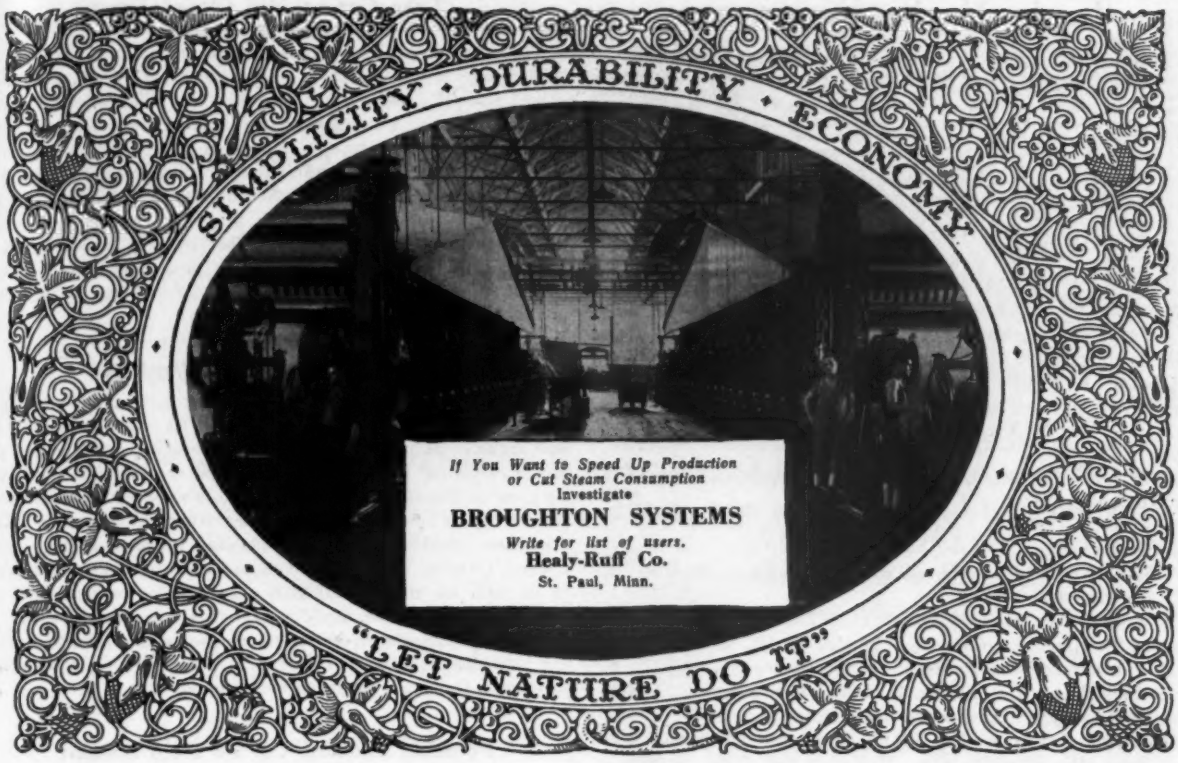
WEEK ENDING FEBRUARY 12, 1927

S. Shapiro & Co., Waukegan, Havre, 23 bls. rags.
Congoleum-Nairn Co., Waukegan, Havre, 120 bls. bagging.
Congoleum-Nairn Co., Waukegan, Dunkirk, 99 bls. bagging.
R. Goldstein, Waukegan, Dunkirk, 13 bls. rags.
Castle & Overton, Inc., Goettingen, Germany, 7,042 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING FEBRUARY 12, 1927

Phila. Girard National Bank, Sangamon, Algiers, 150 bls. rags.
Congoleum-Nairn Co., Sangamon, Leghorn, 165 bls. rags.
Chase National Bank, Sangamon, Leghorn, 76 bls. rags.
Castle & Overton, Inc., Goettingen, Germany, 37 bls. rags.
Castle & Overton, Inc., Goettingen, Germany, 3,103 bls. wood pulp.
Castle & Overton, Inc., J. Skinner, Denmark, 70 bls. rags.
Castle & Overton, Inc., Ambridge, Holland, 216 bls. rags.
Castle & Overton, Inc., London Mariner, London, 65 bls. rags.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If You Want to Speed Up Production or Cut Steam Consumption
Investigate
BROUGHTON SYSTEMS
Write for list of users.
Healy-Ruff Co.
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"LET NATURE DO IT"

DRY YOUR PULP WITH STACK GASES
FIDALGO SYSTEM

(Patented in Dominion of Canada, pending in U. S. and other countries.)

With Economizer You Can Heat the Air for Drying System with Your Waste Stack Gases

INVESTIGATE OUR INSTALLATIONS

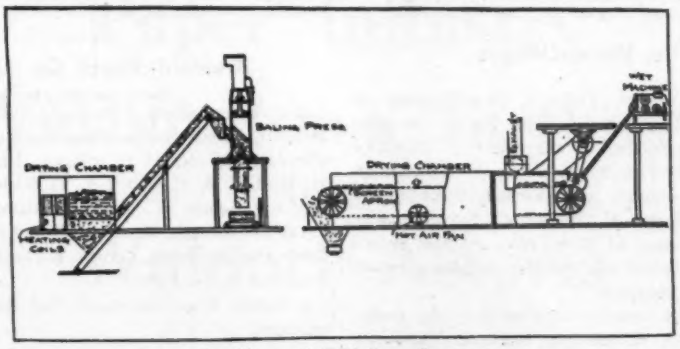
If Steam Used

3500 lbs. steam per ton air dry pulp.

Shredded, pressed and baled securely.

Can be wrapped if required.

BALES from 150 to 250 lbs. as required.



Outline of Fidalgo System

We furnish and install.

Double press Wet Machine, sectional Dryer.

Shredder
Baling press
motors and drive

Producing a compact air dry bale of Shredded Pulp. No injury to Fibre due to contact heated cylinder and saving in Beater horsepower and upkeep. Suitable rail or water shipment.

Small initial investment and low drying cost.

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Trade Marks Department

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The following are trade mark applications pertinent to the paper field pending in the United States Patent Office, which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade Mark Company, Barrister Bldg., Washington, D. C., trade-mark specialists. As an additional service feature to its readers, PAPER TRADE JOURNAL gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering.

LEATHERWEAR—No. 223,731. Charles H. Mc Gill, Minneapolis, Minn. For filing and mailing envelopes and folders.

DEXTER—No. 226,460. The American News Company, Inc., New York City. For writing paper, writing pads, writing tablets.

ARTFOLD—No. 238,820. S. D. Warren Company, Boston, Mass. For printing paper.

238,820. R. C. Cole Company, Inc., Pittsburgh, Pa. For carbon papers and inked ribbons.

DAWN—No. 241,290. Michael Milton, New York City. For cover stock.

GRETA—No. 241,340. Keuffel & Esser Company, Hoboken, N. J. For drawing paper.

LUCINE—No. 241,341. Keuffel & Esser Co., Hoboken, N. J. For tracing paper.

TOFAX—No. 241,536. Macmillian Book Company, Syracuse, N. Y. For loose-leaf books.

IF YOU CARED, YOU'D WRITE—No. 239,756. Ketterlinus Lithographic Manufacturing Company, Philadelphia, Pa. For stationery.

E. J. STILWELL PAPER COMPANY HOUR BRAND—No. 208,932. E. J. Stilwell Paper Co., St. Paul, Minn. For wrapping, writing and printing paper; pasteboard, and bristol board.

AMESTYLE ENVELOCK—No. 239,169. John W. Fitzgerald, Boston, Mass. For envelopes.

GREEN CORE—No. 231,392. Mid-States Gummed Paper Company, Chicago. For kraft paper, bond paper, manila paper, and transversely-perforated paper, both gummed and ungummed, sold in rolls.

BASKET WEAVE—No. 236,977. The Wrenn Paper Company, Middletown, Ohio. For blotting paper.

P. & P. P.—No. 237,037. Newark Paraffine and Parchment Paper Company, New York City. For waxed paper.

GRANDEE—No. 239,831. Strathmore Paper Company, Mittineague, Mass. For book and cover paper.

Diana Paper Co. Elects Officers

WATERTOWN, N. Y., February 14, 1927.—J. H. O'Connell of Harrisville was elected president of the Diana Paper Company of Harrisville, at the annual meeting of the board of directors meeting held at Attorney Frederick Boyer's. F. A. Johnson of Harrisville was elected vice president, and Sherman Valentine of the same place, treasurer. Frank P. Wilder of Syracuse was chosen secretary and Ray Hammer of Harrisville, assistant secretary. Mr. Johnson who was elected vice president, replaces James L. Humes of Harrisville, who resigned.

The members of the board of directors as elected by the stockholders are, J. H. O'Connell, F. A. Johnson, Sherman Valentine, Frank P. Wilder and J. V. Baron; of this city.

New England Paper Men Discuss 1000 Sheet Plan

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., February 10, 1927.—Members of the fine paper division of the New England Paper Merchants Association continued their discussion of the thousand-sheet plan at their luncheon meeting at the Chamber of Commerce, Wednesday, February 2. There was a full attendance. Charles A. Esty presided.

Lake George Mill Closed Down

[FROM OUR REGULAR CORRESPONDENT]

TICONDEROGA, N. Y., February 5, 1927.—The Lake George Mill of the International Paper Company, at Upper Falls, this place, closed down Tuesday. The closing of the mill followed instructions to Thomas G. Mangam, manager, from general headquarters of the International Paper Company in New York. The orders were to close the plant indefinitely, according to the management.

The various departments of the mill began closing last Sunday and work was suspended gradually until the entire manufacturing department was closed Tuesday. The power house continues in operation, the necessary employees for this plant being retained. The power generated will be used in other mills of the company in this vicinity.

Rich Pulpwood Area Untapped

At the annual convention of Dominion Land Surveyors, held during the past week, President Frank D. Henderson said he saw accumulating evidence that the discouraging conditions of the post-war period were passing away and that Canada is on the verge of an era of great prosperity. In this connection he referred to news print production and water power development. The Canadian shield or Laurentian plateau, which stretches across Quebec, Ontario, Manitoba, and on to the Arctic Ocean, embracing in its path an area of 2,000,000 square miles or over half of Canada, contained the world's largest reserve of pulpwood.

In this vast northern country there was a task of colonization and development greater and more complicated than that which had faced Dominion land surveyors in the west.

Potdevin Machine Co. To Hold Exhibit

Visitors to the paper trade convention are invited to call at the Potdevin Machine Company's plant, 1221 38th street, Brooklyn, N. Y., telephone Windsor 7412, and observe the latest methods of converting mill paper into finished paper bags of various types.

The Potdevin Machine Company, as usual during the week of the annual paper trade convention, will have set up under working conditions, a number of representative Potdevin paper converting machines. These will include Potdevin waxing machines, self-spacing square bag machines, printed specialty glassine bag machines, and special equipment for making printed dry cleaner bags, duplex coffee bags and other specialties directly from the roll of paper.

Bradford Paper Co. Officers Re-elected

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., February 1, 1927.—The annual meeting of the Bradford Paper Company was a perfunctory affair, all directors and officers being elected as follows: Directors, C. A. Bradford, Paul H. Hoel, E. A. Campbell, L. H. Kirby, W. S. Dewing, H. C. Jackson and George K. Taylor, Kalamazoo; Charles Binder, Battle Creek and George M. Ames, Grand Rapids; president, C. A. Bradford; vice president, George K. Taylor; secretary, Paul H. Hoel; treasurer, L. H. Kirby.

President Bradford reports that the business outlook for 1927 is excellent.

Present C. W. Baker With Loving Cup

[FROM OUR REGULAR CORRESPONDENT]

BIG ISLAND, Va., February 14, 1927.—On February 12, 1927, the employees of the Bedford Pulp & Paper Company presented C. W. Baker, retiring superintendent of the company's plants at Colemans Falls, and Big Island, Va., with a loving cup as a token of their esteem and affection they hold for him since coming with the company in August, 1908. Mr. Baker retired from his position on February 4 and B. J. Vos, who was assistant under Mr. Baker, has been appointed as superintendent.

TRIUNE

AND

MULTIPLE PLY DRYER FELTS

Serve every Felt Purpose in an efficient and satisfactory way.

ENGLISH or BAKER WOVEN

Made in three, four, five and six ply—60" to 214" wide.

FITCHBURG DUCK MILLS
FITCHBURG, MASS.

For 82 Years Makers of Fine Faced Felts for Papermakers

Your bearings will keep cool, even when sudden and unusually heavy loads are put on, if lubricated with Albany Grease. Albany Grease is a thorough lubricant—never drips.

Trade Mark

Always look for the Albany Grease Trade Mark—Refuse Substitutes.

Your dealer can supply you. If not, write us.

ADAM COOK'S SONS, Inc., 6 Varick St., N. Y.

ALBANY GREASE

Salesmen's Association of the Paper Industry

Washington's Birthday at the Waldorf-Astoria

MORNING: Our Eighth Annual Meeting opens promptly at 10:30 A.M. In addition to regular business we will have a talk on "Advertising" by an "Outsider."

EVENING: At 7:30 P.M. Banquet in Roof Garden. After-dinner talk by Dr. H. P. Silver, followed by a big dance to a ten piece orchestra.

BRING YOUR FAMILY AND FRIENDS

New York Market Review

Office of THE PAPER TRADE JOURNAL,
Wednesday, February 16, 1927.

There was a moderately active demand for the various grades of paper during the past week. The undertone of the local market is quite strong at present, due to the fact that the spring buying movement is expected to be in full swing within a short time. Prices are holding up to schedule, in most instances, and there is little talk of concessions. Sales organizations of the leading paper houses are conducting a strenuous campaign, and are optimistic over the future of the market.

News print continues in excellent demand and there are signs of a further expansion of consumption in the near future. Production of news print is being maintained just ahead of consumption, and the market is in a very sound condition. Trading in the spot market is rather light, while quotations are steady to firm.

The various grades of paper board are in fair request. Spot supplies of box board are in particularly good demand. Fine papers are still active, and innumerable small orders are coming in from the printers. Conditions in the coarse paper market are also favorable, and prices are holding up in a satisfactory manner.

Mechanical Pulp

Demand for ground wood pulp has fallen off slightly and, due to a variety of circumstances, prices are somewhat easier. No. 1 imported moist mechanical pulp is now quoted at from $34 to $36, and dry at from $36 to $38, ex dock. No. 1 domestic mechanical pulp is being offered at from $27 to $30, f.o.b. mill.

Chemical Pulp

The chemical pulp market is practically unchanged. Both domestic and foreign producers are well sold ahead, and prices are steady, generally speaking. Domestic kraft is slightly easier, and is now selling at from $2.85 to $3.40. Refined sulphate screenings are offered at from $1.50 to $1.85, but otherwise quotations are unaltered.

Old Rope and Bagging

Old rope is in better request at steady prices. Mixed strings are moderately active. Dealers are anticipating an increased demand when the spring buying sets in. The paper mills are reported to be displaying more interest in bagging. Offerings, however, are limited, and prices well maintained.

Rags

The domestic rag situation is fairly satisfactory, and it is anticipated that the paper mills will be in a position to take on larger quantities within a short time. Some improvement has been noticed in the demand for roofing rags. Mixed rags are also in fair request. The imported rag market continues quiet.

Waste Paper

While there have been few changes recorded in the paper stock market, a better demand appears to be developing for book paper and old kraft machine compressed bales, the prices for which are firmer. The latter is now being quoted at from $2 to $2.15. Ledger stock is practically unchanged.

Twine

Although the twine market is considered to be in a fairly satisfactory position, prices have been inclined to fluctuate slightly. However, with the approach of spring, greater activity may be expected, and close observers of the market are mostly optimistic regarding the future trend.

Glassine Wrapping Paper

Louis T. Stevenson, 441 Lexington avenue, New York, writes, "In your issue of December 16 there was a dispatch from Washington, D. C., dated December 14, in which mention was made of certain tests that were being made by the Bureau of Standards in connection with ham wrapping for one of the large meat wrapping concerns. The dispatch states that the inner wrapper being of glassine paper, was found to have practically no grease-resistance. Inasmuch as we are manufacturers of both greaseproof and glassine papers, some of them used for the purpose mentioned, I would appreciate it very much if you would publish the enclosed letter received from Mr. Burgess, Director of the Bureau of Standards. I have received permission from him to publish this letter and would call your especial attention to the second paragraph."

The letter from George K. Burgess, director of the Bureau of Standards, Washington, D. C., is as follows:—

"1. Your letter of December 17 has been received. We would advise that the glassine paper used for wrapping ham mentioned in the news item you refer to showed almost immediate penetration of grease.

"2. We appreciate of course that some glassine papers are very grease resistant although different products show considerable variation in this respect. We advised the users of the paper that no doubt satisfactory glassine paper could be secured by specifying the purpose for which it was to be used."

PESHTIGO MILL TO BE SOLD

(*Continued from page 26*)

A new coating machine purchased from John Waldron Company, East Brunswick, N. J., is being installed at the plant of the Appleton Coated Paper Company, Appleton, Wis. It is of 48-inch size, and will provide for production when the present 56, 70 and 80-inch machines are too large. The new machine will be in operation in about two weeks, and will be used only for special jobs.

The Bergstrom Paper Company, Neenah, Wis., is looking to the future enlargement of its warehouse through the purchase of land immediately west of its present building. Old buildings on the property will be removed.

Charles A. Babcock, Neenah, Wis., has donated $5,000 to St. Michaels hospital, Stevens Point, Wis., to help defray the cost of an addition to the building. Mr. Babcock is president of the Wisconsin River Paper and Pulp Company, Stevens Point.

Howard Palmer, field engineer of the federal government, and for several years superintending water power projects on the Fox River, has resigned to become associated with the Kimberly-Clark Company, Neenah, Wis. He will be employed in the engineering department.

Miss Mary Boyes has been appointed nurse for the Marinette and Menominee Paper Company, Marinette, Wis., to succeed Miss Louise Sundstrom, resigned.

SCHOPPER
BEATING TESTER

The Most Valuable of All Testers for Controlling Beating. Assures Uniform Quality for Every Run of Paper. A Booklet Giving Full Details is Yours for the Asking.

Other "SCHOPPER" Instruments include Micrometers, Paper Testers, Paper and Board Scales, Tensile Testers, Folding Testers.

The World's Standard Instruments

FOREIGN PAPER MILLS, INC.
72 DUANE ST. NEW YORK
Sole Agents for United States and Canada

How about the fuzz on your sheet?

"Beard" on your sheet disappears when Quartz Quality Silicate is added to the beater. Hydration of the stock is increased and so the fibre felts better. A smooth, even finish is secured with Quartz Quality Silicate. Write for further particulars about reducing fuzz.

Philadelphia Quartz Co.
Philadelphia

Six Works and Stocks in 32 Cities

PENBERTHY PRODUCTS
REG. U.S. PAT. OFF.

Venturi Circulators and Separators
for paper drying

Require no cold water injection or mechanical pumps, as the entering drier process steam creates ample suction to remove condensate.

Freedom from moving parts

Low Maintenance Costs

CIRCULATOR

They are simple, durable, efficient and inexpensive. They increase the efficiency of the drier and reduce production costs.
No moving parts to get out of order.
Maintain Uniform Drying
Adaptable to all grades of paper machines
Write for circular No. 239

Penberthy Injector Co.
Established 1886
DETROIT, MICHIGAN
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SEPARATOR

For Greater Economy
Without Sacrificing Quality

Use
ALPHA FIBRE

Our new product — which takes the place of rags in paper-making

Inquiries from the trade are welcomed

FINE PAPERS CALL *for* FINE PULPS
We Have Them

BROWN COMPANY
founded 1852
PORTLAND, MAINE

NEW YORK CITY
Woolworth Bldg.

CHICAGO
110 So. Dearborn St.

Miscellaneous Markets

Office of THE PAPER TRADE JOURNAL,
Wednesday, February 16, 1927.

Most of the business transacted in the local chemical market during the past week was along routine lines. Regular contract deliveries continue to move at a satisfactory pace. Prices are holding up very well and there is little talk of concessions. The present position of the heavy chemical industry is quite sound and the future outlook of the market is promising.

BLANC FIXE.— The blanc fixe market ruled steady during the past week and the demand for both the pulp and the powder was persistent, especially for prompt shipment. Prices remain unchanged. The pulp is still quoted at $60 per ton, in bulk, and the powder at from 4 cents to 4½ cents a pound, in barrels, at works.

BLEACHING POWDER.—Seasonable activity prevails in the bleaching powder market. Contract withdrawals are moving in a satisfactory manner. Prices are unaltered. Bleaching powder is still selling at from $2 to $2.40 per 100 pounds, in large drums, at works, according to quantity and grade.

CASEIN.— Trading in the casein market has quieted down and prices are slightly easier. Close observers predict a revival of activity in the near future. The quotation for imported casein now ranges from 16 cents to 16½ cents a pound, while domestic casein is selling at from 15½ cents to 17 cents a pound, all in bags, car lot quantities.

CAUSTIC SODA.— Consumption of caustic soda continues to expand. Contract shipments are going forward in large volume. Prices remain steady at the previously quoted levels. Caustic soda is quoted at from $3 to $3.10 per 100 pounds, in large drums, at works. Spot car lots are offered at $3.20 per 100 pounds.

CHINA CLAY.—The undertone of the china clay market is steady and both the imported and the domestic product is in good requests. Prices continue to hold up very well. Imported china clay is offered at from $15 to $25 a ton, in bulk, ship side. Domestic washed clay is selling at from $8 to $9 a ton, at mine, and pulverized at $10 a ton.

CHLORINE.—Conditions in the chlorine market are particularly steady. Contract shipments have been heavy of late and production is reported to be well sold ahead. Chlorine is quoted at 4 cents a pound, in tanks, or multi-unit cars, at works, on contract orders. The spot price rules from 4½ cents to 4¾ cents a pound.

ROSIN.—The demand for rosin during the week was mostly for nearby or immediate requirements. Prices of gum rosin continue to fluctuate. At the naval stores, the grades of gum rosin used in the paper mills are now offered at from $12.50 to $12.55 per 280 pounds, ex dock, in barrels. Wood rosin is quoted at $10 per 280 pounds, in carload lots, straight through, at southern shipping points.

SALT CAKE.—Manufacturers of salt cake are said to be largely sold ahead and accumulations are limited. Shipments against contract are moving at a good rate and prices are steady to firm. Salt cake continues to sell at from $18 to $20 a ton, in bulk, at works. Chrome salt cake is selling at from $14 to $15 a ton.

SODA ASH.—The soda ash market is steady in tone and prices are being well maintained by the leading manufacturers. Shipments of soda ash are going forward in heavy volume. The spot market was fairly active during the week. Contract quotations, in car lots, at works, per 100 pounds, are as follows: in bags, $1.32½, and in barrels, $1.57¾.

STARCH.—Demand for starch from the paper mills is fairly persistent. Contract withdrawals are proceeding steadily. Production has been kept within moderate limits during recent months and accumulations are limited. Special paper makers' starch is still selling at $3.22 per 100 pounds, in bags, and at $3.39 per 100 pounds, in barrels.

SULPHATE OF ALUMINA.—The position of the sulphate of alumina market is unchanged. Consumption is being well maintained and prices are holding up to schedule. Commercial grades of sulphate of alumina are offered at from $1.40 to $1.45, in bags, at works, in car lots. The iron free is quoted at from $2 to $2.05 per 100 pounds, at works.

SULPHUR.—The undertone of the sulphur market is steady and the demand for this product is steadily expanding. Shipments against contract are going forward at a good pace. Prices remain steady and unchanged. The quotation on the grades of sulphur used in the paper mills ranges from $18 to $19 a ton, in bulk, at mine.

TALC.—Steadiness continues to prevail in the talc market. The request for this product is excellent at the present time and contract withdrawals are proceeding in a satisfactory manner. American Talc is quoted at from $16 to $18 a ton, at eastern mines. French talc is selling at from $18 to $22 a ton, ship side.

PAPER BOARD MEN MEET

(*Continued from page 32*)

Basis of Mullen Test

General Manager Browder brought to the attention of the meeting certain correspondence with the Bureau of Explosives with reference to the proper basis of the Mullen test. It was voted to be the sense of the meeting that insofar as the Bureau of Explosives specifications and regulations are concerned, the proper basis of test should be an average of three punctures in each direction; in other words, an average of six tests.

This subject is being handled further in conjunction with the Bureau of Explosives and members will be advised later as to the outcome.

Luncheon Served to Members

Following the Container Group Meeting in the morning, a luncheon was served to all of the members. Following the luncheon members convened for the afternoon session of the General Meeting of the Three Groups.

Next Meeting

The next meeting of the Association will be held in New York City as per the following schedule: Tuesday, March 22nd—Committee Meetings. Wednesday, March 23rd—Folding Box Group Meeting in the morning.—Paperboard Group Meeting in the afternoon. Thursday, March 24th—Container Group Meeting in the Morning, General Meeting of the Three Groups in the afternoon.

The hotel at which the meeting will be held will be announced in the near future.

Deny Report Regarding Mill at Marshfield

The Crocker First National Bank of San Francisco writes:—It has been brought to our attention that in the January 27 issue of the PAPER TRADE JOURNAL there appeared an article on page 62 under the caption "May Build Mill at Marshfield, Oregon," in which it is stated that a Mr. W. D. Page, Investment Loan Agent of this Institution, has made a survey on behalf of our bank, and has announced the intention of our Institution to build a paper mill at Marshfield. This is to inform you that not only is Mr. Page unknown to us, but there are no investment loan agents representing this Bank, either in Marshfield or in any other part of the United States.

Building New Kalbfleisch Plant

DE QUINCY, La., February 7, 1927.—The Kalbfleisch Chemical Corporation has started construction on a plant located here. This, the seventh of the Kalbfleisch plants, will manufacture rosin size for the Southern and Western paper mills. It will begin production early in the spring, probably about April first. The sales officer for this territory will be Aubrey Bartlett, 777 La Salle street, New Orleans, La.

The B.C. Inc. QUALITY PULPS

HAFSLUND NORWAY

"HAFSLUND BEAR"
Bleached Sulphite

F:HAGA

"FORSHAGA"
Bleached Sulphite

KRAFT HURUM

"HURUM SPECIAL"
Extra Strong Kraft

NORWAY SPECIAL

KOOS BAC

"BAMBLE"
Extra Strong Kraft

The Borregaard Company
Incorporated
200 FIFTH AVENUE NEW YORK, N. Y.

Clay
300 tons daily
AMERICAN MADE FOR AMERICAN TRADE

Over forty-one years' experience in the clay industry has naturally resulted in the adoption of the most scientific methods and practices.
This record of achievement is your guaranty of Clay of absolute uniformity at prices consistent with M. E. quality and service.
Prices of M-E pulverized clay may surprise you even considering this additional treatment.
Let us submit sample and quote you.

EDGAR

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MINER-EDGAR CO.
110 William St.,
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INTERNATIONAL

SALT CRYSTALS

Science is an ingredient added to the production of International Salt.

That is why it is a quality salt—why industrial users may depend upon it for positive results.

Each shipment of International Salt — yesterday, today, and tomorrow—represents purity.

We can satisfy your requirements in every particular.

INTERNATIONAL SALT COMPANY, Inc.
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"EXCELSIOR" FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America.

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

KNOX WOOLEN COMPANY
CAMDEN, MAINE

SOLD BY

BULKLEY, DUNTON & COMPANY

75-77 Duane St., N. Y., and direct

Market Quotations

Quoted by Hepburn & Co., 74 Broadway, N. Y. City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	OFFERED
Advance Bag & Paper, 7s 1943	101	103*
A. P. W. Pulp & Power, 7s 1945	102	106*
American Writing Paper, 6s 1947	79	82
Bastrap Pulp & Paper, 6½ 1940	98	101*
Bedford Pulp & Paper, 6½ 1942	97	100*
British Columbia Pulp & Paper, 6s 1950	80	90*
Beaver Products Corp., 7½s 1942	106	109
Bedford Pulp & Paper, 6½s 1942	95	100
Berkshire Hills Paper, 8s 1941	60	80
Brown Paper Co., 1st 5½s 1946	94	98
Bryant Paper Co., 6s 1942	98	102
Cape Breton Pulp & Paper, 6s 1932	101	103
Central Paper Serial 6, 6½s 1942	89	...
Champion Coated Paper, 6s 1926 to 1932	98	...
Champion Fibre, 8s 1930	100	...
Champion Paper Corp'n, 1st 6s 1945	94	97
Continental Paper Products, 6½s 1943	88	91½
Cornell Wood Prod., 7½s 1937	100	104*
Crown Willamette Paper, 6s 1951	97	101
Donnaconna Paper, 6s 1940	99	102
Dells Paper & Pulp Serial, 6s 1926-38	*95	...
Eastern Mfg. Co., 7s 1938	92	95
Eddy Paper, 7½s 1931	99	102
Escanaba Paper Serial, 6s 1926-39	90	95
Filer Fibre Serial, 7s 1926-39	90	95
Fort Orange Paper, 7s 1942	95	100*
Fox River Paper, 7s 1931	99	...
Gair Co. (The Robt.) 7s 1937	102	105
Gilbert Paper Co., 6½s 1926-29	99	...
Hammermill Paper, 6s 1939	100	103*
Itaska Paper & Prairie River Power J+5½s 1926-38	94	96*
Itaska Paper 1st, 6s 1933-38	96	98*
Kalamazoo Veg. Parchment, 6s 1938	98	...
Lake Superior Pulp & Paper, 6s 1941	102	105*
Marinette & Menominee, 7½s 1936	101	...
Menasha Printing & Carton, 6½s 1939	99½	...
Mengel Company, 7s 1926 to 1934	100*	102
Miami Paper, 7½s 1931	98	...
Monroe Paper Products, 7½s, 1932	96	...
Nekoosa Edwards, 1st Ref. 6s 1928 to 1942	96	99*
Orono Pulp & Paper, 6s 1943	98	...
Orono Pulp & Paper, 5s 1941	94	...
Oswego Falls Corp., 6s 1941	98	100*
Oxford Paper, 6s 1947	100	...
Paepcke Paper Mills, 7s 1930	99	...
Parsons Pulp & Lumber, 7s 1928	97	...
Parker Young Co., 6½s 1944	95	99
Paterson Parchment Paper, 6s 1938	100½	102
Penobscot Chemical Fibre, 6s 1942	98	...
Peshtigo Paper, 7s 1942	50	75
Poland Paper, 7s 1930	98	...
Port Alfred Pulp 6½s 1943	*96	...
Richardson Co., 6s 1938	97	...
Spanish River Pulp & Paper, 8s 1941	106	110
Stevens & Thompson Paper, 6s 1942	91	94
St. Croix Paper, 5s 1926-37	95	98*
St. Regis Paper Serial, 6½s 1926-35	98½	...
Tait Paper & Color Industries, 6s 1934	90	...
Taggart Bros. Co., 6s 1944	97	100*
Ticonderoga Pulp & Paper, 5s 1930	90	95*
Ticonderoga Pulp & Paper, 6s 1940	98	100*
Warren (The S. D.) Company, 6s 1945	98	101
Wotab Paper, 6½s 1943	99	103
Westfield River Paper, 7s 1926-43	Wanted	...
Whittaker Paper, 7s 1942	103	106
Witmer-Parsons Pulp & Lbr. (Units)	63	70

STOCKS	BID	ASKED
Advance Bag & Paper 8% Pfd.	97	100*
Brompton Pulp & Paper 8% Pfd.	93	98*
Brown Corpn., 7% Pfd.	97	100*
Bryant Paper, Com.	11	13
Bryant Paper, Pfd.	9	11
Champion Fibre 7% Pfd.	99	103*
Consolidated Paper, Common	19	24
Diem & Wing, 7% Cum. Pfd.	90	93*
Donnaconna Paper, Com.	49	54
Donnaconna Paper, Pfd.	95	100
Eastern Mfg. Co., 1st Pfd.	34	37
Great Northern Paper, Cap.	285	305
Hammermill Paper, 7% Pfd.	105	110
Hinde & Dauch, Com.	135	...
Hinde & Dauch, Pfd.	100	...
Marathon Paper Mills, Com.	125	...
Louis DeJonge Co., 7% Pfd.	93	96
Munissing Paper, Com.	10	15*
New York & Penna. Co.	Wanted	None Off.
Oxford Papers, Com.	102	...
Oxford Paper Co., Pfd.	100	103
Penobscot Chemical Fibre, Com.	65	75*
Richardson Co., 7% Pfd.	103	...
Rubberoid Company	65	75
Seaman Container, Class B (par $1)	1	None Off.
Seaman Paper Co.	Wanted	None Off.
St. Croix Paper	150	170
St. Regis Paper Co., 7% Cum. Pfd.	97	100
Westfield River Paper Co., 1st Pfd.	Wanted	None Off.
West Virginia Pulp and Paper, Com.	58	63
West Virginia Pulp and Paper, Pfd.	97	102
Whittaker Paper, 7% Cum. Pfd.	99	103

* Nominal

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine Sized	8.00	@11.00
News—		
Rolls, contract	3.25	@ —
Rolls, transient	3.25	@ 3.50
Sheets	3.65	@ 3.85
Side Runs	3.00	@ 3.75
Book, Cased—		
S. & S. C.	7.00	@ 9.75
M. F.	6.25	@ 8.75
Coated and Enamel	8.00	@15.00
Lithograph	8.00	@15.00
Tissues—Per Ream—		
White No. 1	.80	@ 1.00
Anti-Tarnish	1.10	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .85
Kraft	.90	@ 1.00
Manila	.75	@ .85
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	5.25	@ 5.50
Southern	4.75	@ 5.25
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Boards—per ton—		
News	42.50	@45.00
Straw	57.50	@60.00
Chip	40.00	@42.50
Binders' Boards	65.00	@70.00
Sgl. Mla. Ll. Chip.	52.50	@55.00
Wood Pulp	67.50	@72.50
Container	60.00	@65.00
Glassine—		
Bleached, basis 25 lbs	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—		
Moist	34.00	@36.00
Dry	36.00	@38.00
(F. o. b. Mill)		
No. 1 Domestic	27.00	@30.00
Screenings	15.00	@20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.75	@ 4.50
Easy Bleaching	3.20	@ 3.35
No. 1 strong unbleached	2.95	@ 3.05
Mitscherlich unbleached	3.00	@ 3.40
No. 2 strong unbleached	2.85	@ 2.90
No. 1 Kraft	2.90	@ 3.05
Sulphate—		
Bleached	3.75	@ 4.00
(F. o. b. Pulp Mill)		
Sulphite (Domestic)—		
Bleached	3.65	@ 4.75
Easy Bleaching Sulphite	3.00	@ 3.25
News Sulphite	2.65	@ 2.85
Mitscherlich	3.25	@ 3.75
Kraft (Domestic)	2.85	@ 3.40
Soda Bleached	3.75	@ 4.00
Sulphate Screenings—		
Coarse	75	@ 85
Refined	1.50	@ 1.85

Domestic Rags

New Rags

Prices to Mill f. o. b. N. Y.

Shirt Cuttings—		
New White, No. 1	11.00	@11.50
New White, No. 2	7.50	@ 8.00
Silesias No. 1	7.00	@ 7.50
New Unbleached	10.50	@11.00
Washables	4.25	@ 4.75
Fancy	5.25	@ 5.75
Blue Overall	7.00	@ 7.50
New Blue Prints	5.25	@ 5.50
New Soft Blacks	4.00	@ 4.25
Mixed Khaki Cuttings	4.25	@ 5.00
Pink Corset Cuttings	9.50	@10.00
O. D. Khaki Cuttings	5.25	@ 5.75
Men's Corduroy	4.00	@ 4.50
New Mixed Blacks	3.50	@ 3.75
Old Rags		
White, No. 1—		
Repacked	5.50	@ 6.00
Miscellaneous	4.75	@ 5.25
White, No. 2—		
Repacked	3.25	@ 3.75
Miscellaneous	2.75	@ 3.00
St. Soiled, White	2.50	@ 2.75
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.70	@ 1.80
No. 1	1.70	@ 1.80
No. 2	1.40	@ 1.50
No. 3	1.25	@ 1.35
No. 4	1.25	@ 1.35
No. 5A	.95	@ 1.05

Foreign Rags

New Light Silesias	6.75	@ 7.25
Light Flannelettes	7.50	@ 8.00
Unbleached Cottons	9.50	@10.50
New White Cuttings	10.00	@11.00
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50
New Mixed Cuttings	3.00	@ 3.50
New Dark Cuttings	2.75	@ 3.25
No. 1 White Linens	7.00	@ 7.75
No. 2 White Linens	5.00	@ 5.50
No. 3 White Linens	4.00	@ 4.50
No. 4 White Linens	3.00	@ 3.50
Old Extra Light Prints	2.75	@ 3.00
Ord. Light Prints	2.25	@ 2.50
Med. Light Prints	1.85	@ 2.10
Dutch Blue Cottons	2.25	@ 2.50
German Blue Linens	2.25	@ 2.50
German Blue Cottons	2.00	@ 2.25
Checks and Blues	1.75	@ 2.00
Lindsay Garments	1.80	@ 1.90
Dark Cottons	1.70	@ 1.80
Shoppery	1.50	@ 1.60
French Blues	2.25	@ 2.50

Old Rope and Bagging

Prices to Mill f. o. b. N. Y.

Gunny No. 1—		
Foreign	1.60	@ 1.70
Domestic	1.65	@ 1.75
Wool Tares, light	1.60	@ 1.70
Wool Tares, heavy	1.60	@ 1.70
Bright Bagging	1.50	@ 1.60
Small Mixed Rope	1.50	@ 1.65
Manila Rope—		
Foreign	3.50	@ 4.00
Domestic	4.50	@ 5.00
New Burlap Cut	3.00	@ 3.25
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard. White, No. 1	3.50	@ 3.75
Hard. White, No. 2	3.15	@ 3.25
Soft, White, No. 1	2.90	@ 3.10
Flat Stock—		
Stitchless	1.25	@ 1.35
Overissue Mag.	1.25	@ 1.35
Solid Flat Book	1.15	@ 1.25
Crumpled No. 1	.80	@ .90
Solid Book Ledger	1.90	@ 2.10
Ledger Stock	1.50	@ 1.60
New B. B. Chips	.60	@ .70
Manilas—		
New Env. Cut	2.40	@ 2.60
New Cuttings	1.60	@ 1.85
Extra No. 1 old	1.25	@ 1.35
Print	.70	@ .75
Container Board	.60	@ .65
Bogus Wrapper	.75	@ .80
Old Kraft Machine Compressed bales	2.00	@ 2.15
News—		
No. 1 White News	1.50	@ 1.60
Strictly Overissue	.65	@ .75
Strictly Folded	.55	@ .60
No. 1 Mixed Paper	.45	@ .50
Common Paper	.27	@ .32

A Remarkable Range of Grades, Textures and Weights

Orr Endless Felts can now be obtained up to 86 feet in length.

With our enlarged new equipment we can now furnish Paper Manufacturers with endless felts up to 86 feet in length.

Paper Manufacturers who carefully check manufacturing costs, and also strive to produce more and better paper at a lower cost per ton, prefer the unvarying quality and long service of ORR felts. A trial of them will bring about a preference that will be lasting.

THE ORR FELT & BLANKET COMPANY, Piqua, Ohio

WE WILL SELL

Abitibi Power & Paper Co. 6s	@	102
Great Northern Paper Co.	@	258
Jessup & Moore Paper Co. Common	@	25
Paper & Textile Machinery Co 7s	@	98
St. Regis Paper Co. 6s	@	99
Suncrest Lumber Co. 6s	@	35
Ticonderoga Pulp & Paper Co. 6s	@	97½
Union Lumber Co. 6s, 1930	@	96
Watab Paper Co. 6½s	@	101
West Virginia Pulp & Paper Co. Pfd.	@	99

WE WILL BUY

A. P. W. Pulp & Power Co. 7s	@	103
Eastern Manufacturing Co. 7s, 1938	@	94
Jessup & Moore Paper Co. 1st Pfd.	@	85
Long Bell Lumber Co. 6s, 1946	@	94
Minnesota & Ontario Paper Co. 6s, 1945	@	99
Pickering Lumber Co. 5¾s	@	99
Parker Young Co. 6½s, 1944	@	97
Queen City Paper Co. 7s, 1933	@	98½
St. Lawrence Pulp & Lumber Co. 6s	@	20
United Paperboard Co. Pfd.	@	72½

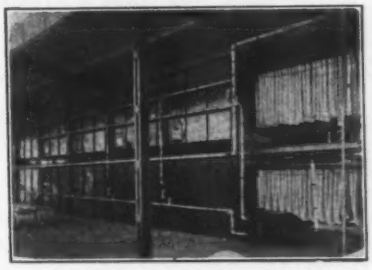
Quotations Subject to Confirmation

H. D. KNOX & CO.

44 Broad St., N. Y. 27 State St., Boston

Inquiries invited on all Paper Pulp Lumber Securities

WALDRON



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showing double tier of enclosed mechanical festoons carrying goods and providing sectional control of drying to any degree desired.

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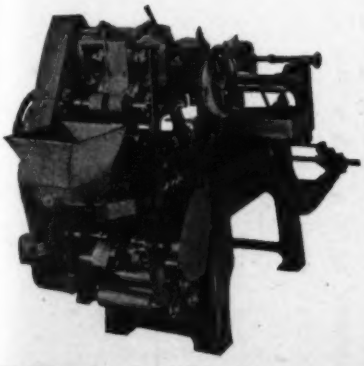
New Brunswick, N. J.

Builders, Since 1827, of Quality Machines for Embossing, Coating, Printing Paper and Textiles—Calenders, Winders, Slitters—Festooning Machines for Paper and Fabrics. Special Machinery.

MACHINES



HIGHEST SPEED
Paper Bag Machinery

Get My Quotations Before Placing Your Orders
Special Machinery Designed and Built

A. L. PARRISH,
1702 Robinson St., South Bend, Ind.

Twines

(F. o. b. Mill)

Cotton—			
No. 1	.26	@	.27
No. 2	.24	@	.25
No. 3	.22	@	.23
B. C., 18 basis	.36	@	.38
A. B. Italian, 18 basis	.46	@	.51
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.21	@	.23
No. 2	.20	@	.22
Tube Rope—			
4-ply and larger	.18	@	.19
Fine Tube Yarn—			
5-ply and larger	.23	@	.27
4-ply	.24	@	.28
3-ply	.26	@	.30
Unfinished India—			
Basis	.16	@	.17
Paper Makers' Twine			
Balls	.13	@	.15
Box Twine, 2-3 ply	.17	@	.19
Jute Rope	.21	@	.23
Ameri. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.18	@	.20
No. 2 Basis	.16	@	.18
Sisal Lath Yarn—			
No. 1	.16	@	.18
No. 2	.14	@	.16
Manila Rope	.24	@	.26

CHICAGO

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.35
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
News—Roll, mill	.03½	@	.04¼
News—Sheets, mill	.03¾	@	.04¾
No. 1 Manila	.04¾	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butchers' Manila	.04	@	.04½
No. 1 Kraft	.05¾	@	.06¼
Southern Kraft	.04½	@	.05
No. 2 Kraft	.05	@	.05¼
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue—			
24 x 36 sheet	.07	@	.07¾
White Tissue—			
20 x 30 sheet	.07¼	@	.07½
Boards, per ton— (Delivered Central Territory)—			
Plain Chip	42.50	@	45.00
Solid News	45.00	@	47.50
Manila Line Chip	55.00	@	57.50
Container Lined— (Delivered Central Territory)—			
85 Test	65.00	@	70.00
100 Test	70.00	@	75.00

Old Papers

F. o. b. Chicago

Shavings—			
No. 1 Hard White	3.60	@	3.70
White Env. Cuttings	3.60	@	3.70
No. 1 Soft Shavings	2.90	@	3.00
No. 1 Mixed	1.35	@	1.45
No. 2 Mixed	1.05	@	1.10
Ledger & Writings	1.45	@	1.60
Solid Books	1.20	@	1.30
Blanks	1.65	@	1.75
Krafts	1.80	@	1.90
New Kraft Cuts	2.25	@	2.35
Manila Envelope Cuttings	2.00	@	2.10
Ex. No. 1 Manila	1.55	@	1.65
Print Manila	.75	@	.85
Folded News (overissue)	.75	@	.85
Old Newspapers—			
No. 1	.65	@	.70
No. 2	.55	@	.60
Mixed Papers—			
No. 1	.60	@	.65
Roofing Stocks— F.o.b. Chicago, net cash			
No. 1	30.00	@	—
No. 2	28.00	@	—

BOSTON

Paper

F. o. b. Mill

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All Rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.17	@	.45
All Rag	.36½	@	.55
Writings	.07	@	.20
Superfines	.22	@	.50
News	.04	@	.04½
Book, Super	.07	@	.10
Book, M. F.	.06¾	@	.09¾
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.06	@	.06½
No. 2 Kraft	.05	@	.05¾
Common Bogus	.02¼	@	.02½
Delivered New England points			
Straw Board			57.50
Filled News Board			47.50
Chip Board			45.00
Single Manila Pulp lined board	55.00	@	60.00
Single White, patent coated board bender	75.00	@	80.00
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
F. o. b. mill			
Tarred Felts—			
Regular	61.00	@	63.00
Slaters	66.00	@	68.00
Best Tarred, 1 Ply, roll	1.50	@	1.60
Best Tarred, 2 Ply, roll	1.70	@	1.80
Best Tarred, 3 Ply, roll	2.00	@	2.10

Old Papers

Shavings—			
No. 1 Hard White	3.25	@	3.75
White Blank News	1.55	@	1.65
Manila Env. Cuttings	2.00	@	2.25
No. 2 Hard White	3.00	@	3.25
No. 1 Soft White	.03	@	.03¼
No. 2 Soft White	.02½	@	.03
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	1.90	@	2.00
No. 1 Books, Heavy	1.15	@	1.25
No. 1 Books, Light	—	@	1.25
No. 1 New Manila	2.25	@	2.50
No. 1 Old Manila	1.50	@	1.75
Print Manila	.85	@	.95
Old Kraft	2.20	@	2.30
Overissue News	.65	@	.75
Old Newspapers	.62½	@	.67½
No. 1 Mixed Paper	.45	@	.52½
Box Board, Chip	.45	@	.60

Bagging

Price f. o. b. Boston

Gunny No. 1—			
Foreign	1.37½	@	1.50
Domestic	1.60	@	—
Manila Rope—			
Foreign	4.00	@	—
Domestic	4.50	@	5.00
Mixed Rope	1.25	@	—
Scrap Burlaps	1.35	@	—
Wool Tares, heavy	1.50	@	1.60
Mixed Strings	1.20	@	1.30
New Burlap Cutting	2.50	@	2.75

Domestic Rags (New)

Price f. o. b. Boston

Shirt Cuttings—			
New White No. 1	.11½	@	—
Silesias, No. 1	.07	@	—
New Unbleached	.10	@	—
Fancy	.05½	@	—
Washable	.04½	@	—
Cottons—According to Grades—Blue—			
Blue overalls	.07	@	—
New Black, soft	3.50	@	4.00
Khaki Cuttings	.04½	@	.05½
Corduroy	.03½	@	.04
New Canvas	.09	@	.10

Domestic Rags (Old)

Price f. o. b. Boston

White No. 1	5.50	@	—
Repacked	6.25	@	6.50
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Thirds and Blues—			
Repacked	2.60	@	—
Miscellaneous	2.15	@	2.25
Roofing Stock—			
No. 1	1.70	@	1.75
No. 2	1.45	@	1.55
No. 3	1.15	@	1.25
No. 4	1.15	@	1.25

PHILADELPHIA

Paper

F. o. b. Mill

Bonds	.07	@	.40
Ledgers	.11	@	.40
Writings—			
Superfine	.13	@	.18
Extra fine	—	@	.22
Fine	.20	@	.26½
Fine, No. 2	.16	@	.25
Fine, No. 3	.12	@	.20
Book, M. F.	.06¾	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.11	@	.16
Coated Lithograph	.09	@	.12
Label	.09	@	.12
News	.03¾	@	.04
No. 1 Jute Manila	.09½	@	—
Manila Sul., No. 1	.04½	@	.06
Manila No. 2	.04	@	.04½
No. 2 Kraft	.05	@	.05¼
No. 1 Kraft	.06	@	.06¼
Common Bogus	.02¾	@	—
Straw Board	55.00	@	56.00
News Board	40.00	@	42.50
Chip Board	37.50	@	40.00
Wood Pulp Board	4.50	@	5.00
(Carload Lots)			
Binder Boards—			
No. 1, per ton	85.00	@	90.00
No. 2, per ton	70.00	@	75.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	66.00	@	68.00
Slaters	70.00	@	72.00
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.55	@	1.70
Best Tarred, 3-ply	2.10	@	2.15
No. 1 Mixed Paper	.65	@	.70

Domestic Rags (New)

Price to Mill, f. o. b. Phila.

Shirt Cuttings—			
New White, No. 1	.11½	@	.12
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07½	@	.08
Black Silesias (soft)	.05	@	.05½
New Unbleached	.11	@	.11½
Washable	.05	@	.05¼
Fancy	.05½	@	.06
Cottons—according to grades—			
Blue Overall	.07½	@	.08
New Blue	.03½	@	.04
New Black Soft	.05½	@	.06
New Light Seconds	.03	@	.03½
Khaki Cuttings	.05	@	.05½
Corduroy	.03½	@	.03¾
New Canvas	.08	@	.09
New Black Mixed	.05	@	.05½

Bagging

F. o. b. Phila.

Gunny, No. 1—			
Foreign	3.50	@	3.60
Domestic	3.25	@	3.30
Manila Rope	4.25	@	4.50
Sisal Rope	1.25	@	2.00
Mixed Rope	1.25	@	1.50
Scrap Burlaps	2.00	@	2.25
Wool Tares, heavy	2.00	@	2.25
Mixed Strings	1.75	@	2.00
No. 1, New Light Burlap	3.25	@	3.50
New Burlap Cuttings	3.25	@	3.50

Old Papers

F. o. b. Phila.

Shavings—			
No. 1 Hard White	3.50	@	3.60
No. 2 Hard White	3.00	@	3.25
No. 1 Soft White	2.80	@	2.90
No. 2 Soft White	1.90	@	2.00
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.90	@	2.00
Writing Paper	1.65	@	1.75
No. 1 Books, heavy	1.15	@	1.20
No. 2 Books, light	.80	@	.85
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	1.00	@	1.10
Container Manila	.90	@	1.00
Old Kraft	2.00	@	2.20
Common Paper	.50	@	.60
No. 1 Mixed Paper	.60	@	.70
Straw Board, Chip	.75	@	.80
Binders Board, Chip	.75	@	.80
Overissue News	.80	@	.90
Old Newspaper	.60	@	.70

Domestic Rags (Old)

White, No. 1—			
Repacked	5.00	@	5.25
Miscellaneous	4.75	@	5.00
White, No. 2—			
Repacked	.03½	@	.04
Miscellaneous	.02	@	.02¼
Thirds and Blues—			
Repacked	2.50	@	2.75
Miscellaneous	1.75	@	2.00
Black Stockings	3.25	@	3.50
Roofing Stock—			
No. 1	1.55	@	1.65
No. 2	1.40	@	1.50
No. 3	1.25	@	1.35
No. 4	1.20	@	1.30
No. 5A	.90	@	1.00
B	.80	@	.90
C	.80	@	.90

TORONTO

Paper

F. o. b. Mill

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¾	@	—
Ledgers (sulphite)	—	@	.13
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09¼	@	—
News f. o. b. Mills—			
Rolls (carloads)	3.25	@	—
Sheets (carloads)	3.75	@	—
Sheets (2 tons or over)	4.00	@	—
Book—			
No. 1 M. F. (carloads)	7.75	@	—
No. 2 M. F. (carloads)	7.50	@	—
No. 3 M. F. (carloads)	7.25	@	—
No. 1 S. C. (carloads)	8.25	@	—
No. 2 S. C. (carloads)	8.00	@	—
No. 3 S. C. (carloads)	7.75	@	—
No. 1 Coated and litho	14.50	@	—
No. 2 Coated and litho	13.50	@	—
No. 3 Coated and litho	12.75	@	—
Coated tinted	.15	@	—
Wrapping—			
Rag Brown	4.85	@	—
White Rap	5.25	@	—
"B" Manila	5.65	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.20	@	—
M. G.	7.35	@	—

Pulp

(F. o. b. Mill)

Ground wood	28.00	@	32.00
Sulphite easy bleaching	63.00	@	65.00
Sulphite news grade	55.00	@	60.00
Sulphite, bleached	80.00	@	—
Sulphate	65.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.60	@	—
Soft White Book shavings	3.00	@	—
White Blk., News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.25	@	—
Light and Crumpled Book Stock	1.10	@	—
Ledgers and Writings	1.40	@	—
Solid Ledgers	1.40	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Folded News	.80	@	—
No. 1 Mixed Papers	.60	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

	Per lb.		
No. 1 White Shirt Cuttings	.10½	@	—
Fancy Shirt Cuttings	.05	@	.05½